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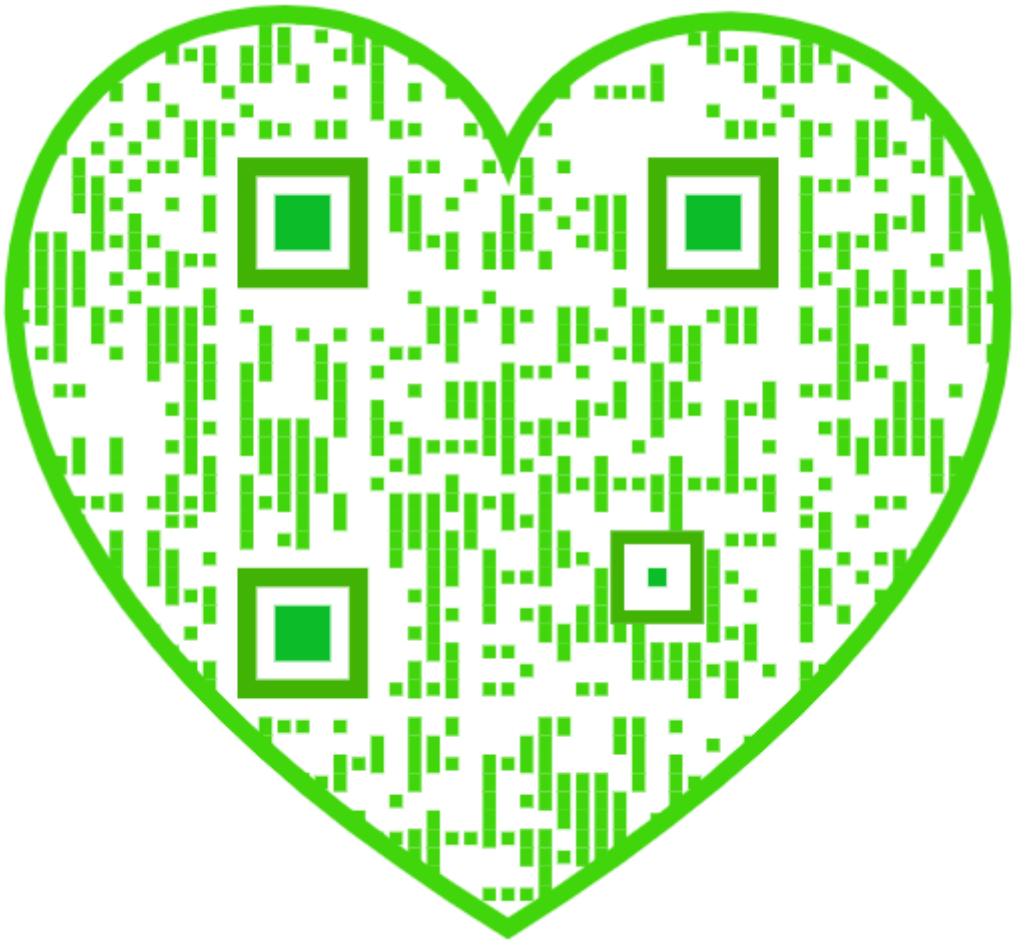

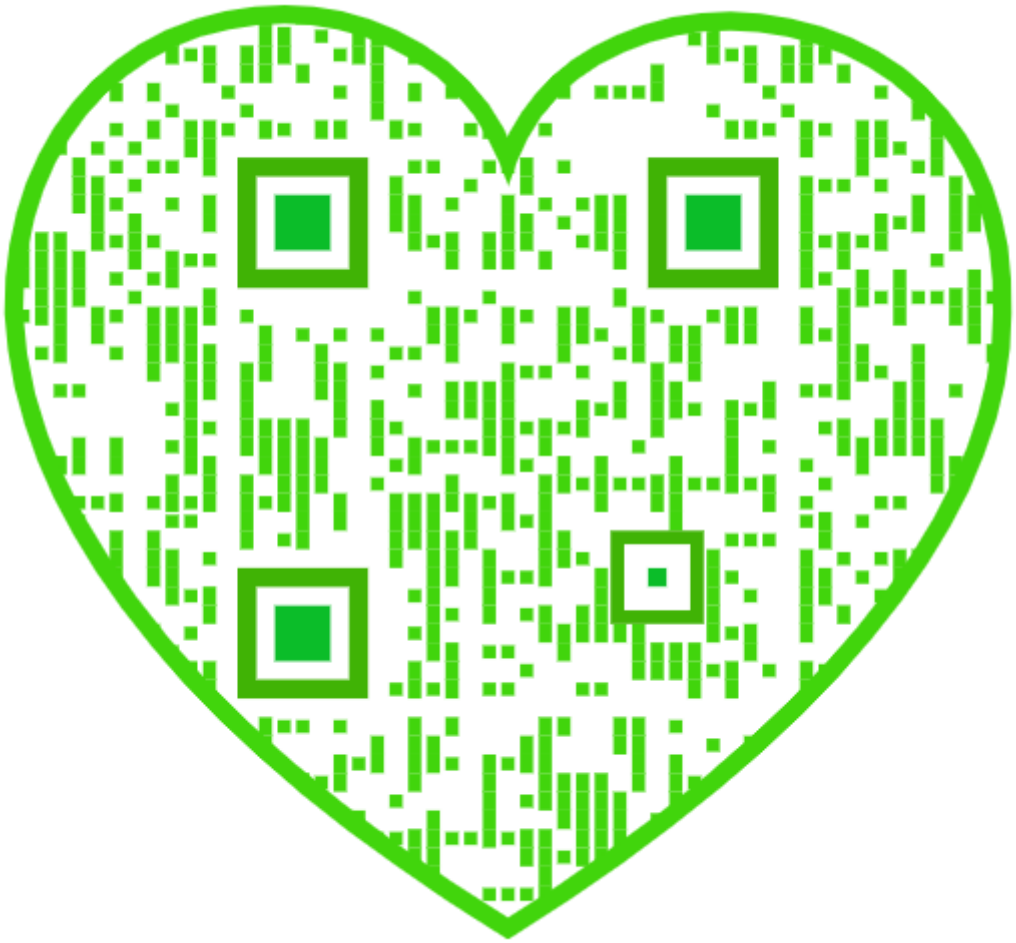

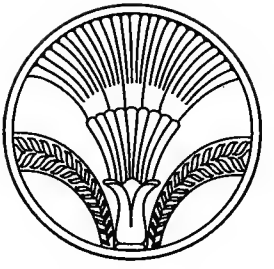

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Letter of Submittal—Conclusions.

November 11, 1918.

MR. V. A. WALLIN,
Chairman, Foreign Trade Committee.

MY DEAR MR. WALLIN:

In the following pages an effort has been made to discuss concisely but comprehensively the main conditions governing the leather industry of the world, and the maintenance and expansion of our own production and export trade.

In preparing this paper it was decided to treat the subject in three parts—one showing the importations of raw stock, the production of leather, and the exportation and importation of leather for each of the leading manufacturing countries; another showing the production and importation of leather in semi-manufacturing countries or regions in which raw stock is produced; and a third dealing with the animal population and raw-stock supply of the world.

It can be safely estimated that in 1913 the United States produced nearly as much leather as all of Europe combined. Our principal article of export in that year was glazed kid, and in this we held the bulk of the world's trade. Since the war we have made great progress in the exportation of sole, calf and kip, and patent upper leather.

Germany's principal article of export in 1913 was calf and kip upper leather though she had also made some progress in the production and exportation of patent and glazed kid leather. Despite the general impression that German industries have long been highly organized for the export trade, there was no "cartel" in the shoe and leather industry in that country until within the last two or three years, when war conditions led to the formation of a combination under pressure from the Government.

Great Britain, prior to the war, was not able to produce sufficient leather to meet home demands and the requirements of her export shoe business. However, it is believed that the growth resulting from the war will probably make her self-sufficient so far as sole leather is concerned, and it is not improbable that she will make considerable progress

in the production and exportation of the finer grades of upper leather. Although France is a leading producer of goat and kid leather, her trade in *finished* leather is confined largely to a few high grades, and it is not believed that she will become a formidable competitor of American producers.

With respect to the production of leather in semi-manufacturing countries there is a strong tendency toward home production of most requirements. Practically all of the outlying countries produce sole leather that is sufficient in quantity and acceptable in quality for home requirements. It is only upper leather that is usually imported, and in the case of several countries the production of better grades of upper leather is seriously interfering with imports. In the British self-governing Dominions in particular there is a strong tendency toward tariff protection of infant industries, including leather and shoes—usually combined with preferential treatment for British products.

The United States depends upon the outside world for about 45 per cent of the cattle hides, practically all of the goat skins, and a considerable proportion of the sheep skins consumed. The bulk of our supply of goat skins comes from British India and China, and the United States is by far the largest consumer of these skins. As regards China, the available supply of goat skins is not even known. In the circumstances it is believed that some sort of constructive steps should be taken at once to insure getting our share of the world's supply of hides and skins.

Indeed, in view of the probable international competition for available supplies of raw stock after the war, and the obvious desirability of assuring adequate quantities for the use of American tanners, it may be found advisable to form an import organization for the control of this branch of the trade. The legal aspect of such a combination would, of course, have to be given careful consideration.

There is much loose talk about preparation for trade after the war by groups of manufacturers in Germany, Great Britain, and other European countries, but, as far as can be seen, their plans are nearly all on paper and few definite steps have been taken. As regards Great Britain, however, the point should be made that she has in some way endeavored to keep up the interest of her customers abroad by supplying their needs as best she can and sending specially trained men as representatives of manufacturers to keep in touch with the trade. While in South America last year the writer met a textile expert

who had been withdrawn from the British Army and sent to the West Coast of South America to keep in touch with Britain's cotton-goods trade in that section. In discussing his mission he stated that his country considered the work that he was doing quite as important as if he were in the trenches on the Western battle front.

It will be noted that Germany in 1913 depended upon the Allied countries for 48 per cent (by quantity) of stock for hides and skins consumed by that country. It is of interest to note in this connection the large increase in the net imports into Germany of hides and skins—amounting to about 40 per cent—from 1910 to 1913. As regards tanning materials, the home production of Germany was only about one-fifth of her requirements. With respect to importations, the official import figures for 1913 showed that practically all of the bark, ground and unground, came from British possessions and that 93 per cent of the chromic iron imported in the year named came from French and British territory. Furthermore, it has been ascertained that the great supply of quebracho upon which she must depend is now in Allied hands.

With respect to the German leather industry it should be pointed out that that country is now, so far as shoes for the civilian population are concerned, mainly on a fiber and wooden basis; and it can be safely assumed that it will take several years at least for Germany again to supply home demands, to say nothing of branching out into the export field.

With regard to Germany's raw stock, she could be somewhat crippled by the cutting off of supplies from Allied sources, but in my opinion such action, of more than a temporary character, is most unlikely. Many of the things that are planned during the heat of war are changed when the belligerents put down their arms and come to fix the terms of peace. It can not be imagined that any country, no matter how badly beaten, will not find means to prevent its own economic ruin.

In connection with the foregoing it is stated that the semi-independence of the British Colonies, from which much of the world's raw stock comes, must not be overlooked. It is most likely that these Colonies will have some opinions of their own when it comes to making an international policy to cover the distribution of products which furnish the life blood of their own people.

It can easily be seen from the following paper that the leather im-

port trade outside of Europe and the United States, is relatively negligible. With respect to the part that we play in the European trade, it is clear that we have a large share, and that this has been built up as a result of the superiority of certain brands of American leather sent to consumers in that section of the world. It is believed that this trade can best be held by a continuance of individual efforts of tanners rather than through a collective organization. In short, it does not seem to me that there is any need at this time for the organization of an export company for the tanning industry.

There is, however, every reason to believe that the Foreign Trade Bureau in the Tanners' Council can be of much service to the industry in a supplemental way by gathering and compiling statistical and other information needed by the various firms. In time this Bureau should make itself a valuable adjunct of the export departments of the various firms engaged in overseas trade.

What is most needed at this time is the adoption of an export policy by our Government that will remove the restrictions on the exports of our leather, and particularly of glazed kid. Otherwise the splendid markets built up through tedious efforts of our people will be forever lost.

Finally, in connection with the matter of forthcoming customs tariff adjustments, some sort of protection or reciprocity should be provided for American tanners. It does not seem quite fair that the products of our tanners should be met by a high tariff law in some countries and an absolutely free hand given to the same countries to invade markets of the United States and make inroads in the trade of our own people.

In conclusion, I wish to express appreciation for the valuable assistance rendered in connection with this work by Mr. John R. Arnold, Chief of the Foreign Trade Bureau.

Very truly yours,

E. A. BRAND,
General Secretary.

The World's Trade in Hides, Skins and Leather.

Part I.—Principal Manufacturing Countries.

UNITED STATES.

ANIMAL POPULATION.—According to Department of Agriculture estimates for 1917, there were in the United States in that year more than 65,000,000 cattle and 48,000,000 sheep. The supply of goats is nominal. As a producer of cattle the United States ranks next to India (161,000,000 cattle, including buffaloes). The next country below the United States is Russia, with 52,000,000 cattle in Europe and Asia. As a producer of sheep the United States ranks third in the world, with 48,000,000, Australia and Russia each possessing about 70,000,000. The Argentine Republic ranks fourth, with about 43,000,000.

HIDES AND SKINS.

Consumption.

It is estimated that the consumption of hides and skins in the United States in the year 1913 aggregated 1,272,000,000 pounds, or 71 per cent more than the estimated consumption of Germany in that year. Of this total 776,980,366 pounds, or about 61 per cent, was produced in the United States; while the remainder—495,019,634 pounds, or 39 per cent—was imported. There was a falling off of 16 per cent in the production of cattle hides and calfskins in the United States as compared with 1909, the last Census year, and of 14 per cent in importations. Of sheepskins consumed it is estimated that the home production amounted to about 52,341,120 pounds, or 42 per cent, while practically the entire supply of goatskins was imported. The total value of imported hides and skins in the year named was $117,386,794—including horse and buffalo hides, kangaroo skins, etc.

The total consumption of hides and skins in 1916 and 1917 is estimated at 1,532,000,000 and 1,598,000,000 pounds, respectively (or an increase of 20 per cent and 26 per cent over 1913). The total value of imports of all hides and skins in the year first named reached the sum of $158,861,376; and in 1917 of $216,363,609.

Importations.

In connection with this subject of importations of raw stock, there is given below a statement showing the quantities of cattle hides,

calfskins, goatskins and sheepskins imported into the United States in the fiscal years 1913, 1916, 1917, and 1918:

Hides and skins.	1913 *Pounds.*	1916 *Pounds.*	1917 *Pounds.*	1918 *Pounds.*
Calf	94,559,135	64,135,000	46,336,000	13,161,000
Cattle:				
Green	185,447,165	280,838,692	225,363,408	190,844,499
Dry	82,595,225	153,339,079	161,236,620	76,655,271
Goat	96,250,305	100,657,021	105,640,307	66,932,937
Sheep	71,784,719	101,459,281	95,730,598	55,468,915
Total	530,636,549	700,429,073	634,306,933	403,062,622

During the years 1916 and 1917 importations of cattle hides, goatskins, and sheepskins reached the highest point in the history of the trade; while the importations of calfskins, for reasons that will be stated hereafter, showed a great decline as compared with former years.

Cattle hides.

In 1913 the importations of green salted and dry cattle hides aggregated 268,042,390 pounds. Of this amount about 82,000,000 pounds came from Europe, 86,500,000 pounds from South America, 77,300,000 pounds from North America, 15,200,000 pounds from Asia, and the remainder, 7,200,000 pounds, from Australasia and Africa. Close examination of the figures shows that importations were received from 15 countries of Europe, the largest importations being from Russia, France, and Germany (22,906,231 pounds, 20,102,370 pounds, and 9,787,312 pounds, respectively); from three countries of North America, Canada contributing 41,608,176 pounds; and from 16 countries of Central America and the West Indies. Mexico and Cuba contributed about 29,500,427 and 2,850,141 pounds, respectively, and Argentina furnished 67,041,938 pounds. At this point it should be noted that Brazil did not begin to figure considerably in the exportation of cattle hides to the United States until the year 1915. Colombia and Uruguay each contributed in the neighborhood of 5,000,000 to 7,000,000 pounds.

It will be noted that the importations of cattle hides in 1916 and 1917 increased 62 per cent and 44 per cent, respectively, over 1913. These importations, as stated above, are the highest in the history of the country and will be again referred to indirectly in connection with the

discussion of the production and exportation of leather during the past two or three years.

Calfskins.

In 1913 the importations of calfskins, as indicated above, amounted to 94,559,135 pounds, of which 30,000,000 pounds came from Russia, 17,000,000 pounds from Germany, 4,300,000 pounds from British India, 6,000,000 pounds from Canada, 5,300,000 pounds from the United Kingdom, and the remainder from 9 countries in Europe, 12 countries in Central America and the West Indies, 5 countries in South America, and 14 countries in Asia, Australasia and Africa. It will be noted that there was a decided falling off in the importations during the years 1916 and 1917—of 34 per cent and 51 per cent, respectively. In 1918 the importations suffered a decline of about 86 per cent from 1913. This falling off is, of course, due largely to the loss of the Russian and German markets. However, this loss has been compensated to some extent by considerable increases in the importations of calfskins from the Argentine Republic, Uruguay, China, British India, and the Dutch East Indies.

Goatskins.

Goatskin importations in 1913 aggregated 96,250,305 pounds. Importations were received from 20 countries of Europe; from Canada and Mexico in North America; from 5 countries of Central America; from 9 of the West Indian Islands; from 7 countries of Asia; from 9 countries of Africa; and from 1 in Australasia. Out of the total indicated, British India furnished 41,124,364 pounds; China nearly 10,000,000 pounds; Russia, 7,184,000 pounds; and Argentina and Brazil 7,634,000 pounds. It will be noted that the increase in importations in 1916 and 1917 was nominal. The heavy falling off in 1918 is due to shipping restrictions.

Sheepskins.

Sheepskins were received from about 40 foreign countries. About 29,000,000 pounds came from England (consisting largely of Australasian skins); about 8,500,000 pounds from Russia; about 3,000,000 pounds from France; about 7,000,000 pounds from Argentina; and about 8,000,000 pounds from Australasia. Attention is called to the

fact that a considerable increase in the direct sales from Australasia was shown in the years 1916 and 1917, and a falling off in the purchases by way of the United Kingdom during the same period. This would indicate that more American buyers are finding their way into the Australasian markets.

Conclusions.

The foregoing figures show very clearly that the United States is in no way dependent upon any enemy country for its raw stock; so there is no need for comment on this point. There are, however, one or two other points that should be emphasized. The United States is dependent upon foreign sources for about 45 per cent of its cattle hides, 50 per cent of its calfskins, 75 per cent of its sheepskins, and practically all of its goatskins; so that, while there is no dependence on enemy countries for raw stock, appropriate steps ought to be taken to make sure of a due share in bargaining with Allied countries. As regards cattle hides, a large share is controlled by American packers now operating in South America.

Although tonnage restrictions have been placed on importations, the receipts of cattle hides during the fiscal year 1918 were about equal to those of 1913. In the case of calfskins, in which there was a falling off due to causes already stated, the importations were more than 600 per cent greater in 1913 than in 1918. The importations of goatskins and sheepskins have suffered great decreases on account of shipping restrictions, amounting to 30 per cent and 23 per cent, respectively.

Exports of Raw Stock.

Exports of hides and skins from the United States have long been of trifling importance in comparison with the importations. In 1917 the exports of domestic raw stock amounted to 10,000,000 pounds, and the re-exports of foreign raw stock to 13,000,000—in comparison with total imports of 700,000,000 pounds. In 1918 the figures were 12,000,000 and 6,400,000 pounds, as compared with 433,000,000 pounds. The bulk of the domestic raw stock exported consists of cattle hides, with fairly large items of calfskins and horsehides; while of the re-exports an even larger proportion is accounted for by cattle hides, with all other classes scattering.

Production of leather.

The following table gives the quantities of the several kinds of leather produced in the United States during the year 1914, as compared with estimates for 1917:

Leather.	1914 *Pieces.*	1917 *Pieces.*	Percentage of increase or decrease.
From cattle hides (sides).....	32,180,526	48,948,262	+52
From calf and kip skins.....	16,587,296	11,566,241	—30
From goat and kid skins.....	34,627,296	51,151,413	+48
From sheep and lamb skins....	29,406,970	45,694,290	+56
Total.....	112,802,088	157,360,206	+39

The value of leather produced in the United States in 1913 was $367,201,705, while a very rough estimate shows the value in 1917 to have been approximately $760,000,000. A detailed statement of this estimate, together with similar figures for 1915 and 1916, will be found in Appendices A and B (pp. 58-59).

Glove leather an infant industry.

Just prior to the outbreak of the present war the men's fine glove leather industry in the United States was in its infancy, German tanners supplying fully five-sixths of the leather suitable for the purpose consumed in this country. The value of the imports amounted to $2,384,677 in 1913. As a result of the cutting off of the German supply, an infant glove-leather industry has grown up in this country that is now of considerable importance; and there are a number of firms engaged in this line. In connection with this matter the following statement from the Chairman of the Glove Leather Division of the Tanners' Council is pertinent:

> The production of fine-grain glove leather began commercially in this country in 1913 and rapidly increased during 1914. When the war broke out in 1914, for a short time the industry was seriously impeded, but later, of course, glove-leather tanning became a fairly large industry, until by the end of 1915 the glove-leather tanners were easily producing all the leather required by this country, and were beginning to be in a position to look for export business. This condition was maintained, until lately the tanners have been compelled to close or run very slowly owing to lack of raw material.

Exports of leather.

The value of exports of leather in the fiscal year 1913 aggregated $42,384,199. It will be noted that the exports of upper leather amounted to $28,435,561, or about $1,000,000 more than the export trade of Germany in the year 1913. Following is a statement of the exports of the United States during the fiscal years 1913, 1916, 1917, and 1918:

Leather.	1913	1916	1917	1918
Belting	$1,105,168	$2,608,176	$3,122,841	$2,544,257
Carriage, automobile and upholstery	107,430	38,937	97,054	130,891
Glove	316,715	675,964	1,497,957	2,542,282
Patent	1,750,119	4,626,975	7,150,097	4,690,320
Sole	8,804,955	27,186,761	39,026,278	12,245,967
Upper, calf and kip	2,392,861	6,216,011	8,229,038	7,554.560
Upper, goat and kid	19,573,509	18,420,905	30,285,489	14,383,148
All other upper	4,719,072	11,635,931	12,810,199	10,600,801
All other leather and tanned skins	3,614,370	8,664,227	6,370,790	4,751,549
Total	$42,384,199	$80,073,887	$108,589,743	$59,443,775

Analysis of exports in 1913.

In 1913 American belting leather was sold in about 70 countries, including $232,153 worth in Germany. Central and South America and the West Indies took about $322,000 worth.

The exports of upper leather amounted to $28,435,561. Of the goat and kid upper leather, $15,000,000 worth went to Europe. The best customer was the United Kingdom, which took about $7,000,000 worth, and was followed by Germany, with a total of $3,000,000. Germany also took about $500,000 worth of calf upper leather.

Although sole leather was exported to about 60 countries, the bulk of it went to the United Kingdom.

There is one point in connection with our leather trade in Latin America that is well worthy of mention, namely, that the total of American belting, carriage and automobile, upper, and sole leather sold in this section of the world in the year named amounted to nearly $6,000,000, as against no more than $1,500,000 from Germany. This should set at rest much of the idle talk about Germany's predominance in the countries south of us.

Increase in exports during later years.

It will be noted that the exports of sole leather increased more than a hundred per cent (making allowance for the increased price)

during the years 1916 and 1917; this being due to the increased orders from the United Kingdom (which has always taken the bulk of our exports of this product) and from several neutral countries of Europe. It will be noted, however, that in the fiscal year 1918 there was a decided decline in the exports of sole leather to the United Kingdom, resulting from the fact that, in order to supply the demands of her army, that country had greatly expanded her production of sole leather; which makes it probable that at the close of the war she will have a self-contained sole leather industry, and that there will be a consequent decline in her purchases from the United States.

It is interesting to note that our infant glove-leather industry, which has grown up as a result of the war, is now yielding a sufficient surplus to supply an export market. During 1917 this leather found its way to 33 foreign countries, 7 of which were South American. Patent leather was sent into about 60 foreign countries, our largest customers in 1917 being the United Kingdom, which took $1,812,000, as against $629,000 in 1913, and Australia, which took $1,388,000 in 1917, as against $176,000 in the earlier year.

Calf leather was exported to about 70 countries in 1917. The United Kingdom increased her purchases from $471,000 worth in 1913 to $2,450,000 worth in 1917. Brazil was the next largest customer, increasing her imports from $144,407 in 1913 to $1,180,000 in 1917. It is clearly evident that we have absorbed every dollar's worth of the German leather trade in Brazil. It should also be mentioned that imports into the Argentine Republic increased from $119,000 in 1913 to about $394,000 in 1917.

The exportation of kid leather, which is the most important item of export, increased about 50 per cent in value during this period, but relatively little in quantity. The largest part, of course, of the increase in the exports of kid leather is attributable to the increased demand from both Allied and neutral countries in Europe. Two other increases, however, are worthy of note. First, Canada increased her imports from $244,000 in 1913 to $1,765,000 in 1918; second, exports to Japan increased from $52,000 in 1913 to $1,238,000 in 1917, though they fell off again to $679,000 in 1918. It is believed that this temporary increase resulted mainly from the transshipment in Japan of consignments to Siberia.

There was a falling off in the trade with South America of more than $1,200,000 between the years 1913 and 1917. In 1913 the sales

amounted to about $2,865,000, while in 1917 they aggregated only about $1,597,000. There has been a decided increase in the case of Brazil and several other countries, but in the case of the Argentine Republic there was a falling off of more than $1,000,000 from the 1913 figure of $1,413,000. This decrease took place in 1914, and is attributable without doubt to the business depression in the Argentine, arising from the failure of the land boom and from the effects of overspeculation, which began to be felt about that year.

Leather production—German competition.

Something should now be said about the imports of leather into the United States. In 1912, 1913, 1914, 1915, 1916, 1917, and 1918 the values of the imports amounted, respectively, to $6,951,233; $8,908,237; $13,810,347; $10,874,722; $13,455,779; $20,111,666; and $13,057,148.

Shortly after leather was placed on the free list, German tanners established agencies in important shoe centers in this country, and competition in calf and other upper leathers especially became very keen. With the advantage of securing raw skins from Eastern Europe and with cheaper labor costs, "it became increasingly difficult to compete with them." In connection with this matter a prominent tanner in New England states:

> The German leather in some finishes (particularly black gun-metal finish) proved to be of interest to many of the American manufacturers of fine footwear. We do not know whether or not they did the business at a loss, but we do know that in many instances they sold at prices lower than those at which we could sell without loss. It is now our opinion, from what we have gathered from Americans who were the selling representatives of certain German tanners, that they went after the business regardless of profit, figuring that they would be able to recoup after they had established their lines with American shoe manufacturers.

After the removal of the import duty on finished leather, and up to the outbreak of the war, German manufacturers made some progress in selling in this country a cheap, heavy side upper leather, in competition with American work-shoe upper made from imported and domestic country hides, and claimed that they expected to capture a large share of this trade.

At the same time, moreover, British tanners, who have not, generally speaking, made their competition seriously felt in this country, had made some headway in placing on the market a cheap grade of upper leather made of East India kips, mostly rough-tanned in India and finished in England.

Patent leather.

The United States and Germany are the principal producers of patent leather. It is stated that prior to the war Germany could apparently produce this leather at a considerably lower cost than was possible in this country. Prior to the war, moreover, the patent leather shipped into this country by Germany was almost all of the old-fashioned French patent calf, so-called, and leather japanned on the *flesh side*—which was not produced in this country except in a very limited way. After the passage of the Underwood-Simmons law Germany began to ship *grain* finished patent leather made from cow hides and kid skins; and these leathers were sold, it is stated, at a price lower than the same article could be produced in our own country, although we were the originators of the grain patent leathers. In connection with this matter the following statement as regards cost was made by the Chairman of the Patent Leather Division of the Tanners' Council:

> It is possible that the Germans sold their leathers here to introduce them at cost or less than cost, but we are inclined to think, knowing the prices that they quoted in foreign markets, that because of their lower costs of production, they sold their leathers in our country at some profit, even though at prices below those that could be quoted by our own tanners. As far as the patent-leather industry is concerned, my experience would lead me to believe that all we need is a sufficient duty to protect our higher costs of manufacture.

Canadian competition.

Prior to 1913 the imports of leather from Canada aggregated not more than $75,907 (the figure for 1908). After the passage of the tariff act now in force in 1913, sole-leather importations from Canada increased from $100,112 in 1913 to $2,782,226 in 1916; in 1918 the importations amounted to $1,893,985. Prior to 1916 no other kinds of Canadian leather, except belting, had made any headway in this market. Beginning with that year, however, importations of harness leather increased from $199,858 to $3,815,180 in 1918; patent leather from $67,268 to $92,265; and calf and kip from $829,274 to $1,517,190.

There are also several other kinds of leather that are being imported from Canada.

GERMANY.

ANIMAL POPULATION.—The animal population of the German Empire in 1913 included 20,944,258 cattle, 5,504,195 sheep, and 3,383,971 goats (1912 figure). As regards cattle, the Empire had nearly four-fifths as many as either the Argentine Republic or Brazil in the year mentioned. Germany is a considerable importer of livestock from neighboring countries. The number of cattle imported averaged about 200,000 during the five-year period ended with 1913, and the number of sheep ran from 1,500 to 15,000 annually.

CONSUMPTION OF HIDES AND SKINS.

Consumption in 1910 and 1913.

According to the census taken in 1910, the consumption of hides and skins in Germany aggregated about 656,732,000 pounds. Of this amount the net imports accounted for 282,957,000 pounds and the estimated domestic production for 373,775,000 pounds. Following is a statement showing in pounds the consumption of various kinds of hides and skins according to the German census of 1910:

	Pounds.
Cattle hides	444,342,000
Calfskins	110,801,000
Horsehides	33,472,000
Sheep and lamb skins	41,548,000
Goat and kid skins	22,186,000
Other hides and skins	4,383,000
Total	656,732,000

The total increase in net importations of hides and skins during the three-year period from 1910 to 1913 was 121,910,198 pounds, or about 40 per cent. Combining this with the figures for consumption given above, and with those for domestic slaughter of cattle, calves, and sheep in the two years under consideration, the domestic production in 1913 may be estimated at 337,959,000 pounds, and the total consumption in that year at 742,827,000.

Imports in 1913.

Of the imported raw stock in 1913, approximately 48 per cent by quantity came from the Allied countries. On a basis of value the percentage from the Allied countries is somewhat higher.

In studying the statistics of imports it is found that Germany drew hides and skins from 60 or more foreign countries. The gross imports of raw stock in 1913 reached approximately 554,000,000 pounds, with

IMPORTS OF HIDES AND SKINS INTO GERMANY IN 1913.

(Quantities in pounds.)

		Number of Countries.	Europe.		America.		Africa.		Asia.		Australia.		Unclassified.[3]	Allied.	Others.	Totals.	Percentages.[4]
Cattle hides.....	A[1]	24	60,932,500	7	44,021,000	4	6,094,400	7	58,103,600	5	6,506,000	1	704,300	175,657,500		369,580,500	48
	O[2]	37	60,894,200	9	117,814,200	18	10,219,500	7	4,290,800	3					193,218,700		
Calfskins.....	A	11	37,419,100	6	318,600	2			466,800	2	1,520,800	1	323,900	39,725,300		86,487,100	46
	O	11	44,570,600	9	1,867,300	2									46,437,900		
Sheep and lamb skins..	A	16	14,990,400	9	164,200	1	561,300	1	267,000	3	1,424,700	2	860,300	17,407,600		42,148,700	42
	O	19	16,928,700	10	2,517,300	4	4,080,500	3	354,300	2					23,880,800		
Goat and kid skins....	A	14	8,615,500	8	658,700	2	46,500	1	5,487,900	2	34,800	1	171,100	14,843,400		24,425,800	61
	O	16	4,687,000	8	111,600	2	3,406,600	3	1,206,100	3					9,411,300		
All other	A	9	15,242,800	5	2,798,300	1			139,300	2	206,600	1	1,537,000	18,387,000		31,668,600	61
	O	9	9,272,600	6	2,472,000	3									11,744,600		
Totals.....	A		137,200,300		47,960,800		6,702,200		64,464,600		9,692,900		3,596,600				48
	O		136,353,100		124,782,400		17,706,600		5,851,200								
Grand total.....			273,553,400		172,743,200		24,408,800		70,315,800		9,692,900		3,596,600	266,020,800	284,693,300	554,310,700	

[1]—Signifies Allied countries.
[2]—Signifies enemy and neutral countries.
[3]—Portion of total for which countries of origin are not shown.
[4]—Percentages which totals for Allied countries form of totals for whole classes, excluding "Unclassified" column.

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a value of $112,322,000. The table opposite shows in detail the quantities of hides and skins imported from the various sections of the world, classified into "Allied" and "Other" (enemy and neutral) groups. For the purposes of this table Russia (exclusive of Finland) and Rumania are reckoned as "Allied."

Cattle hides.

Taking first the importations of cattle hides, it will be noted that Germany secured 176,000,000 pounds from 24 Allied countries. Included in this total is an item of 21,300,000 pounds from Russia. Of the importations from 37 "Other" countries, the largest item under Europe was from Austria-Hungary. The total from the 7 Allied countries of America included 40,000,000 pounds from Brazil and Uruguay. Of the total from the 9 "Other" countries of America all but about 35,000,000 pounds came from the Argentine Republic. In view of the fact that a large proportion of the cattle hides produced in the Argentine Republic is under the control of British and American packing concerns, it can be safely assumed that Germany's importations from that country could be considerably restricted if a need arose for such action. The largest item from Africa consisted of 4,600,000 pounds from Abyssinia. Since shipments from that country would have to pass to seaboard through Allied territory, it can be assumed that this trade could be controlled by the Allies. Of the 62,000,000 pounds of cattle hides imported from Asia, 42,000,000 pounds came from British India.

Altogether, 48 per cent of Germany's importations of cattle hides came from Allied countries.

Calfskins.

Of the total of 40,000,000 pounds of calfskins coming from Allied countries, the contributions from France amounted to 22,000,000 pounds, while those from Russia amounted to 11,000,000. Of the "Other" countries from which calfskins were received, Austria-Hungary was the largest contributor, with 22,000,000 pounds. The importations from Denmark amounted to 7,700,000 pounds, while those from Sweden aggregated 5,800,000. Switzerland, also, contributed 3,400,000 pounds. The item of 2,000,000 pounds of calfskins from "Other" American countries is charged to the Argentine Republic.

It would seem that Germany, in view of her proximity to Russia, would continue to secure her full quota of calfskins from that country; and ought to secure, regardless of any restrictions that might be imposed, at least 75 per cent of her total needed supplies of these skins.

Sheep and lamb skins.

The principal countries included in the "Allied" group are: Greece, 2,700,000 pounds; Portugal, 600,000 pounds; Russia, 3,700,000 pounds; Serbia, 1,100,000 pounds; and the United Kingdom, 2,100,000 pounds. In the "Other" group are included: Bulgaria, 367,000 pounds; Denmark, 4,600,000 pounds; Spain, 3,600,000 pounds; Turkey, 1,600,000 pounds. The sheepskins imported from Africa included about 3,800,000 pounds from Algeria and Morocco, and about 260,000 pounds from Tunis.

Goatskins.

British India furnished 3,700,000 pounds of goatskins, while China supplied 1,700,000 pounds and the East Indies—included in the "Other" countries—sent forward skins to the amount of 999,680 pounds.

EXPORTS OF HIDES AND SKINS.

In view of her extensive steamship service, which reached every port in the world, and her highly developed free-port system, principally at Hamburg, Germany was a world distributor of many raw materials, including hides and skins. The figures of foreign commerce for 1913 show exports of hides and skins from Germany aggregating 149,465,000 pounds. Of this amount 25 per cent went to Russia, 16 per cent to Austria-Hungary, and 14 per cent to Belgium.

TRADE IN TANNING MATERIALS.

Leather was formerly tanned in Germany with oak and pine bark; later valonia and sumac were used. Quebracho has been employed for about 35 years, being imported in large quantities, principally as logs. Divi-divi is largely used in the tanning of sole leather under the North German system. Wattle bark has been used for about 20 years, while mangrove bark, which is now consumed in moderately large quantities, was introduced at a comparatively recent date. Mangrove bark of East and South African origin is preferred.

Of extracts, chestnut extract was the first used to a considerable extent in Germany. Extract of oak was adopted soon afterward. Quebracho extract is to a large extent manufactured in that country. It is the principal product of the German tanning and extract factories.

It is estimated that Germany supplies perhaps one-fifth of her demand for tanning materials.[1]

Imports of tanning materials.

Although there are large tan-oak forests in Germany, considerable quantities of oak bark are imported annually; this is also true as regards pine bark.

According to the German statistical reports, vegetable tanning materials, tanning woods, and chrome ores were imported in 1913 to the amount of 405,904,400 pounds, valued at $4,362,920.

There is given on the next page a detailed statement from which it will be seen that practically all the tanning barks, ground and unground, and about 95 per cent of the chrome ores, came from Allied countries or dependencies.

It is understood that 80 per cent of the quebracho log and extract production in the Argentine Republic is controlled by the Forestal Land, Timber & Railway Co., a British concern. Prior to the war, the management of this concern was in the hands of Germans resident in the Argentine Republic; but soon after war was declared these were dismissed and replaced by British subjects. It is understood that the remaining 20 per cent of the quebracho production is in the hands of Germans living in the Argentine, but that the Forestal Co. is negotiating with these individuals to take their entire output for the next

[1]"Shoe and Leather Trade in Germany" (Special Agents' Series No. 50, United States Bureau of Foreign and Domestic Commerce), by A. B. Butman; pp. 24-25.

Articles and countries of origin.	Pounds.	Value.
Mimosa, mangrove, maletto, and other tanning barks, ground and unground:		
Total	95,761,400	$1,638,948
British East Africa	5,718,200	97,888
British South Africa	67,324,300	1,152,268
British West Africa	203,500	3,330
German East Africa	2,766,900	56,608
Madagascar	11,136,000	190,564
British India, etc.	1,777,900	27,328
Dutch East Indies, etc.	604,700	10,248
Australia	4,923,200	84,180
Quebracho wood and other tanning woods, in blocks:		
Total	248,147,000	2,354,064
Argentina	248,147,000	2,354,064
Quebracho and other tanning woods, "broken up":		
Total	10,600,300	77,108
Belgium	10,599,600	76,616
Chrome ores:		
Total	51,395,700	292,800
Turkey	4,752,200	26,108
British South Africa	3,642,200	20,008
Portuguese East Africa	8,852,700	49,532
United States	117,300	732
French Oceania	29,797,500	171,044
Recapitulation:		
Tanning barks	95,761,400	$1,638,948
Tanning woods in blocks	248,147,000	2,354,064
Tanning woods, "broken up"	10,600,300	77,108
Chrome ores	51,395,700	292,800
Grand total	405,904,400	$4,362,920

five or ten years. If this is accomplished, Germany will be in a sad predicament as regards the importation of her main vegetable tanning material. It should be added that the International Products Co., financed by Armour & Co., has gone into the manufacture of quebracho extract.

Exports of tanning materials.

Exports of tanning materials are small in comparison with imports. The largest single item is quebracho and other tanning woods in blocks, of which, in 1913, Russia took 4,254,000 pounds, Austria-Hungary 3,888,000 pounds, and Sweden 2,053,000 pounds. Of other exports, wattle and mangrove bark went to Austria-Hungary and Russia; acorns mainly to Austria-Hungary; algarobilla, divi-divi, myrobalans, sumac, catechu, etc., to Russia and Sweden; gallnuts, sumac, and other extracts to Belgium, France, Italy, and the Netherlands; and quebracho extract to nearly all the neighboring countries.

LEATHER TRADE OF GERMANY.

Domestic production.

Leather of all kinds produced in Germany in 1910 was valued at $156,249,000. As no actual figures are available for production since that year, the production and value for 1913, the year that will be used for purposes of comparison, must be estimated. Using as a basis the estimate of total consumption already given, and making an estimated allowance for the variation in prices during the interval, it is calculated that the value of the leather produced in Germany in the year 1913 was about $195,000,000.

During the years immediately before the war there was an increasing tendency in the German leather industry to specialize (particularly for export) in box calf, patent, and glove leather, although the percentages of these classes showing in the 1910 census of production were still relatively low. The importance of the calf production is concealed to some extent by the fact that a considerable proportion is made from East India kips, which appear in the statistics of importation as cattle hides.

In 1913 some progress has been made in the production of goat and kid leather. Both machinery and men had been imported from the United States for the purpose of establishing plants to turn out leather

of the same superior quality as that produced in this country, and experiments had even been made with imported American water. Up to 1913, however, American firms were selling annually in Germany several million dollars' worth of glazed kid leather.

The chief product of the German sheep and lamb leather industry (which was also, as appears from the import figures, an infant industry up to 1913) was glove leather. This was made principally of sheep and lambskins, coming from many sources, of which Austria-Hungary, Russia, Denmark, and Spain were perhaps the most important. The United States was the principal customer for the portion of the product exported.

Imports of leather.

The total imports of leather into Germany in the year 1913 reached a value of $20,308,000, of which the principal items were as follows: Tanned sheep and lambskins, $5,436,000, coming mainly from the United Kingdom, France, and India; dressed sheep and lamb leather, other than glove and patent, $3,643,000, coming mainly from France, the United Kingdom, and Belgium; patent calf, $227,000, coming mainly from Great Britain; tanned goat and kid skins, $2,444,000, coming mainly from India and the United Kingdom; dressed goat and kid leather, other than glove and patent, $1,395,000, coming mainly from the United States, France, and the United Kingdom; and belting leather, $1,107,000, coming from the United Kingdom, Belgium, the United States, and Sweden.

Exports of leather.

The total exports of leather from the German Empire in 1913 were valued at $57,598,000, of which upper leather, valued at about $27,255,000, was the principal item.

By an analysis of the figures it has been found that Germany was sending upper leather to nearly all foreign countries. Exports to the value of $24,670,000 were sent to 18 European countries, of which $15,931,000 went to Allied, and the remainder to neutral and enemy territory. To the 11 countries of Latin America, only $1,353,000 worth of upper leather was sent in the year referred to, and this total includes, for some of the smaller countries, *manufactures of leather.* It was estimated that upward of $1,400,000 worth of upper leather was sent

to Asia, Africa, and Australasia. It was a bit surprising to find that, notwithstanding the heavy importations of cattle hides from British India, Germany's sales of leather in that country were small, as were the sales to China and Australia. As will be seen later, the United States holds the bulk of the leather trade of Latin America, Australasia, and South Africa.

The following table gives the exports of upper leather from Germany to the principal European and Latin American countries for the year 1913:

Countries of destination.	Value.
EUROPE.	
Austria-Hungary	$4,764,000
Russia	5,686,000
Belgium	725,000
Bulgaria	131,000
Denmark	499,000
Finland	312,000
France	1,467,000
Greece	126,000
Italy	2,663,000
Norway	412,000
Portugal	441,000
Roumania	417,000
Serbia	48,000
Spain	326,000
Sweden	552,000
Switzerland	1,334,000
Turkey	409,000
United Kingdom	4,358,000
Total	$24,670,000
LATIN-AMERICA.[1]	
Mexico	$128,000
Costa Rica	20,000
Honduras	18,000
South America:	
Argentina	282,000
Bolivia	124,000
Chile	.....
Colombia	66,000
Ecuador	42,000
Brazil	566,000
Paraguay	20,000
Peru	87,000
Total	$1,353,000

[1]Includes some items of manufactured leather.

The next item of importance is sole leather, of which Germany exported $3,433,000 worth in 1913. The bulk of this leather was taken by Austria-Hungary, Switzerland, Denmark, France, the Netherlands, and the United Kingdom. The last-named country was the largest consumer, taking $841,806 worth.

The remaining items consisted of about $27,000,000 worth of belting leather, harness leather, upholstery, glove leather, pocket-book leather, goat and kid, and other forms. Glove leather, glazed, to the value of $700,672 went to Austria-Hungary and Great Britain, and $1,516,060 to the United States. Goat and kid (other than glove and patent) to the value of $7,309,000 was sold largely to European countries.

Of sheep and lamb leather other than glove and patent (valued at $2,334,000), the bulk went to Europe, but Brazil took $282,000 worth and the United States a small amount. Exports of patent calf were valued at $3,240,000, of which Argentina and Brazil took $367,000, Australia $71,000, and the United States $267,000. The remainder went to Europe. Patent leather of other materials to the value of $7,174,000 was also exported.

Up to 1913, Germany was not much more than able to supply enough shoes for the home demand. Consequently her export trade was comparatively small, amounting to $7,000,000. On the other hand, she imported boots and shoes to the value of $2,530,000, of which the following were the principal items by countries of origin: Austria-Hungary, $649,000; the United States, $551,000; Switzerland, $399,000; and the United Kingdom, $270,000.

AUSTRIA-HUNGARY.

ANIMAL POPULATION.—The latest figures available for recent years, ranging from 1910 to 1913 for various parts of the Monarchy, show a total of approximately 17,500,000 cattle, 12,300,000 sheep, 3,000,000 goats, and 4,400,000 horses for the whole country, including Bosnia-Herzegovina.

TRADE IN HIDES AND SKINS.

The table below shows the Austro-Hungarian exports and imports of hides and skins of the principal classes for 1912 and 1913, the latest years for which separate figures are available. About two-thirds of the cattle hides were imported dry and one-third wet, but the proportion of the wet hides appeared to be increasing. From this table it appears that Austria-Hungary is of importance as both an importer and an exporter of hides and skins. This is partly due to the relatively large domestic production in the agricultural parts of the Monarchy,

and partly to a certain amount of transit trade between parts of Russia and the Balkan countries, on the one hand, and central and western Europe, on the other. Germany has been the principal customer for Austro-Hungarian hides and skins.

Hides and skins.	1912.		1913.	
	Imports. *Pounds.*	Exports. *Pounds.*	Imports. *Pounds.*	Exports. *Pounds.*
Cattle	72,882,533	42,846,622	79,673,583	35,172,198
Calf	2,170,972	23,995,969	2,652,134	25,180,500
Goat	1,695,999	3,409,193	2,085,993	3,369,069
Sheep	13,326,366	6,667,068	13,810,938	9,021,664
Horse	241,844	4,158,758	488,539	5,040,377
All other	715,952	1,144,581	607,588	1,338,633
Total	91,033,666	82,222,191	99,318,775	79,122,441

There are no very full or recent figures with regard to the production of hides and skins in Austria-Hungary. Inasmuch as the numbers of live stock have remained very nearly stationary for the last 10 or 15 years, some idea of the domestic production of hides and skins for the latest normal years may be obtained by comparing with the figures given under "Animal Population" the following data for hide-and-skin production in 1905: Cattle hides and calfskins, 11,132,000; sheepskins, 3,775,000; and goatskins, 461,000. The number of calfskins is given separately only for Austria proper, for which it amounted to 6,160,000.

LEATHER TRADE.

Domestic production.

The Austro-Hungarian tanning industry had already reached considerable importance in 1912 and 1913, when the latest detailed information at hand on the subject was obtained. There were then in the Monarchy about 700 tanneries of greater or less importance, excluding some 2,000 small establishments not employing more than five persons each. Most of the more important tanneries are in Bohemia and Moravia and the neighborhood of Vienna. Those in the last-named district will apparently be reckoned with the German industry of the future, while the Bohemian and Moravian plants will belong to the new Czech state.

Vegetable tannage is the system in most general use, as not more than 20 per cent of the finished output was tanned by chrome processes in 1913. This was claimed to be due to the import duty on chemicals and other tanning materials and accessories, which, it was stated, made competition with the neighboring German chrome tanners very difficult,

the cost of the materials averaging 35 per cent higher in Austria than in Germany. Use is made, so far as possible, of native vegetable tanning materials, large quantities of which are grown within the country, principally pine and oak barks and gallnuts. The production of these materials is quite large, and, though no very recent figures are available, there was an exportation of them running to a value of about $1,000,000 a year. There are a number of factories making extract from oak wood, pine bark, and quebracho; and there was also a considerable exportation of tanning extracts. The imports of tanning materials, however, were much larger than the exports. During the latest years for which figures are available, these imports ran from $3,200,000 to $3,600,000. From 25 to 35 per cent of the importations consist of quebracho extract, and about the same proportion consists of quebracho and other tanning woods in blocks and in ground form, and of gallnuts, myrobalans, and valonia, in about equal proportions. The only other important items shown separately are chestnut wood extract and sumac extract.

Most of the larger Austrian tanning plants are equipped with machinery, of which 50 to 60 per cent before the war was of American manufacture, and the remainder in about equal proportions of German and Austrian origin. None of these plants, however, is large according to American standards.

Of the total sole-leather production, about 80 per cent is tanned by the rapid tanning system, 15 per cent by the old six to eight months' process, and the remainder by the combination system.

The latest figures available for the production of the Austro-Hungarian leather industry are the following, for the census year 1911:

Sole leather	hides..	1,247,500
Belting leather	hides..	157,500
Flexible insole leather (from kips)	hides..	310,000
Upholstery leather	hides..	60,000
Harness leather	hides..	122,500
Upper leather (vegetable system)	cowhides..	204,000
Upper leather (vegetable system)	kips..	522,500
Upper leather (chrome system)	kips..	655,000
Patent and enamelled leather	kips..	157,500
Pigskins	skins..	135,000
Glazed kid	skins..	475,000
Imitation glazed kid from sheepskins	skins..	600,000
Fancy leather (East India tannage)	skins..	1,475,000
Glove leather	skins..	2,250,000
Total		8,371,500

Available data are inadequate for making an estimate for any later year.

Exports and imports of leather.

Statistics of Austrian imports and exports of leather are available for the years 1912 and 1913. Total imports for the two years were, respectively, 16,199,634 pounds, valued at $14,822,873, and 18,822,647 pounds, valued at $15,588,374. About one-third of the imports have consisted of sheep and lamb leather other than glove and patent, and about the same proportion of sole and other hide leathers. Imports of goat and kid leather, other than glove and patent, have run from 2,000,000 to 2,500,000 pounds, patent leather to about 750,000 pounds, and glove leather to 600,000 to 700,000 pounds. Germany was much the most important source of supply for the Austrian imports of leather during the years immediately preceding the war; but all the other producing countries of western Europe, as well as the United States, also appear in the statistics.

Austrian exports of leather were of much less importance than the imports, although those for 1913 showed a considerable increase over those for 1912, being 9,144,902 pounds, valued at $5,839,067, for the later year, as compared with 5,376,578 pounds, valued at $4,183,469, for the year preceding. Exports consisted of a large variety of items in comparatively small amounts. The highest single item was sole leather, which accounted for about a quarter of the total in each of the years indicated. Other hide leather also accounted for a large proportion of the total, especially in 1913. Approximately 500,000 pounds of glove leather were exported in each year, 200,000 to 600,000 pounds of calf leather, other than patent, and 150,000 to 180,000 pounds of patent leather.

UNITED KINGDOM.

ANIMAL POPULATION.—The number of cattle in the United Kingdom is estimated at 12,500,000; the sheep at 27,800,000; the goats at 269,000; and the horses at 2,181,000.

TRADE IN HIDES AND SKINS.

With regard to the British trade in hides and skins, a comparison of the figures for 1912 with those for later years is made difficult by a change in the classification. Consequently this statement will be confined to the period 1913 to 1917. For the former year the gross imports

amounted to approximately 162,736,000 pounds, valued at approximately $28,500,000. For 1917 the gross imports reached 102,067,840 pounds of wet hides and skins and 79,730,560 pounds of dry. The estimated imports for 1918 were reduced to 44,170,560 pounds of the wet and 28,611,520 pounds of the dry. The British classification of raw stock is not at all detailed, and calfskins, which constitute a very small proportion of the total, are the only class shown specifically in the imports.

The gross exports of hides and skins from the United Kingdom consist in large proportion of reexports (60 or 70 per cent in normal years), and are not classified specifically, except for wooled sheepskins, which do not form a very large part of the total. In 1913 these exports included 416,773 pounds of wooled sheepskins out of a total of 81,382,896 pounds of hides and skins; but in 1917, the latest year for which figures are available, the former class had almost disappeared and the total was reduced to 20,000,000 pounds. Exports of domestic origin amounted only to 24,400,000 pounds in the former year, and 5,800,000 in the latter.

The high proportion of reexports results, of course, from the extensive degree of control, direct and indirect, that British interests exercise over the world trade in raw stock, and with regard to which some details are given in the section dealing with that subject.

Here also it may be appropriate to remark that there is a very similar degree of British control over the supply of many important tanning materials. Something is said on this subject in dealing with the German imports of tanning materials, in the section on that country. The various British African territories, India, and the British possessions in tropical America and the West Indies are producing regions of importance, and the British control of shipping lines and of general exporting business in many foreign countries plays an important part in this trade as well as in the case of raw stock.

LEATHER TRADE.

Domestic production.

The Census figures for the year 1907 are the latest available in detail in regard to the production of leather in the United Kingdom. According to these figures the output of the tanners in that year aggregated about 238,000,000 pounds, valued at about $85,000,000. On

the basis of provisional figures for the domestic production of hides and skins, and of the statistics for net imports, it may be roughly estimated that the consumption of British tanneries in 1917 reached 372,000,000 pounds. This was the year of heaviest production in the history of the industry. As indicated above, the importations of raw stock for 1918 have been greatly decreased on account of shipping restrictions, and this will, of course, have its effect in reducing the output.

Following are the details of production in 1907:

Classes of leather.	Quantity. *Pounds.*	Value.
Undressed	185,584,000	$42,774,932
Dressed	40,320,000	27,116,136
Varnished, japanned, or enameled	1,120,000	1,386,952
Leather belting	11,424,000	5,479,679
Waste and by-products	.....	8,654,235
Total	238,448,000	$85,411,934

Tanning methods.

With respect to tanning methods in the United Kingdom, Mr. Arthur B. Butman, Commercial Agent of the United States Department of Commerce, who visited that country in 1912, reported:

The American tanner is more progressive than the British tanner; the latter is slower to undertake new processes and methods and hesitates to run risks; at the same time he carries on the various manufacturing operations with carefulness and precision. Some of the smaller tanyards would probably be considered obsolete by an American tanner. The larger and more important, however, are equipped with machinery, and certain of the more progressive plants in Bristol, Warrington, Liverpool, Leeds, and Birmingham are equipped with the most modern and up-to-date machines available. Operations are carried on more rapidly in an American than in an English tannery; machines are run at a higher speed; rolling machines, for instance, are run 50 per cent faster than in England. The British tanner claims that the British sole leather is better finished and better tanned, and consequently takes longer to tan and finish than is customary in the United States. About five months is generally required for tanning good sole butts in this country, six to seven months for better-class heavy butts, three months for shoulders, and two months for bellies. In the finishing or shed work, from a fortnight to three weeks is consumed owing to the fact that the finishing required by the English trade must be carefully done, and the system of bleaching with soda followed by acid is not used by English tanners. An English tanner turning out 750 hides weekly requires as much shed room as an American tanner with an output of 3,000 hides per week. Liming and soaking are more thoroughly done in the United States than is usual in England; more water is used and the hides are handled more during the liming process.

Exports and imports of leather.

Figures are available for exports and imports of leather for the United Kingdom for the years 1912 to 1917, inclusive.[1] Total imports of leather rose from 160,055,392 pounds, valued at $57,063,342, in 1912, to 173,189,408 pounds, valued at $76,159,281, in 1915; since which year they have declined considerably, largely owing to trade restrictions. Exports of leather amounted to 25,545,744 pounds, valued at $11,281,943, in 1912, and 28,638,288 pounds, valued at $16,833,512, in 1913; since when there have been considerable fluctuations, with a tendency to decline as regards quantity.

Of the tanned calfskins imported into Great Britain, 80 per cent or more of the total come from India. Of the tanned goatskins, 80 per cent come from India, and nearly all the rest from British West Africa. Of the tanned sheepskins, 75 or 80 per cent come from India and Australia in about equal proportions, and the remainder mainly from France. Of the other tanned hides and skins (mainly cattle hides), about 40 per cent come from the United States, 15 to 20 per cent from India, and the remainder from Canada and Australia. In 1913 British imports of box calf were distributed among a number of countries, with the largest items from France; but by 1917 the bulk of the total was coming from the United States. Of the glazed kid, practically the whole is of American origin. The varnished, japanned, and enameled leather formerly came mainly from Germany, but now from the United States. In a similar manner this country has replaced Russia in the minor item of morocco and Russia leather.

[1] The classification of leather in the British statistics is not very detailed. Undressed leather is shown in the imports under the headings "Calfskins," "Other hides," "Sheepskins," and "Other skins"; dressed leather is shown under the headings "Box calf," "Glacé kid," "Varnished and japanned," "Morocco and Russia, including imitations," and "All other." This classification, moreover, applies only to the imports, the exports being shown under three classes only—two for dressed leather and one for undressed. Undressed leather has all along constituted the bulk of the imports, especially "hides other than calfskins," which have generally run to about two-thirds of the total imports. Dressed sheepskins have also been a large item, with a tendency to decrease in recent years. Imports of dressed leather have been relatively unimportant, and the "all other" item has constituted the greater part of the total, so that it is impracticable to go into detail with regard to this part of the subject from the available data. Of the items of dressed leather shown separately, box calf and glacé kid have been the most important, and approximately equal in amount. Of the exports of leather, half or more have been, all along, in the rough tanned class; and of the dressed leather exports, all but a small fraction have been in the "all other" classes.

Exports of shoes.

While the United Kingdom plays only a relatively small part in the exportation of leather, she had for a long time before the war become the largest exporter of shoes in the world. The trade in 1913 amounted to $19,343,972 and in 1917 to $31,128,329. Of the totals for those years $12,042,597 and $12,262,543, respectively, went to British possessions, among which the Union of South Africa was the most important customer. Among non-British countries the largest amounts were taken by France, Italy, and Russia. The increases in 1917 were mainly due to exports of army shoes.

FRANCE.

ANIMAL POPULATION.—The number of cattle in France is estimated at 12,000,000 and the number of sheep at 11,000,000. While, as will be shown later, France is a large producer of goatskin leather, she depends largely on importations for her raw stock of this class.

TRADE IN HIDES AND SKINS.

Imports of hides and skins into France in 1913 amounted to approximately 201,000,000 pounds, of which 164,000,000 pounds were accounted for by heavy cattle hides, not further classified. Calfskins amounted to 6,000,000 pounds, sheepskins to about 26,000,000, and goatskins to 4,900,000. In 1917 these imports had fallen off to about 110,000,000 pounds, of which nearly 97,000,000 were accounted for by heavy cattle hides.

The consumption of raw stock in France for the first six months of 1918 was estimated at 122,000,000 pounds of domestic hides and skins and approximately 37,000,000 pounds of the imported. Exports of hides and skins from France in 1913, exclusive of reexports, amounted to about 129,000,000 pounds; but in 1917 these had dropped off to 20,000,000 pounds.

PRODUCTION OF LEATHER.

The only detailed figures for the production of leather in France are the following for 1911, summarized in a report by a Special Agent of the Department of Commerce: Upper leather, 7,200,000 goatskins, 2,520,000 calfskins, and 720,000 sheepskins; sole leather, 540,000 hides; leather belting, 300,000 hides; fancy leather, 7,020,000 hides. No official or detailed figures for production are available for any later

year, but a rough estimate places the consumption of raw stock for 1917 at approximately 260,000,000 pounds.

In normal years about one-quarter of the output of the tanners of France that enters the export trade consists of tawed or tanned sheep, lamb, goat, and kid skins; and these are taken in large quantities by near-by countries such as the United Kingdom, Italy, Spain (and, before the war, Germany), and also the United States, and finished into shoe-upper and glove leather. Nearly one-third of the finished leather exported consists of natural-color, dyed, or black sheep, lamb, goat, and kid leather, which is used for shoe-upper and glove purposes. Probably the larger proportion consists of shoe stock.

Considerable quantities of fine "French calf" for shoes and "French kid" for gloves (specialties of a few firms) are sold in foreign countries —some in Europe, but notably in South America. France, however, is not considered a formidable competitor so far as goat or kid leather is concerned. A certain amount of sole leather is also exported.

IMPORTS AND EXPORTS OF LEATHER.

Statistics of imports and exports of leather for France are available from 1912 to 1916, inclusive. During this period imports of leather rose from 16,638,820 pounds, valued at $11,330,272, to 39,482,920 pounds, valued at $31,113,400. In the first year about half of these imports were included in the class "skins other than goat, sheep and lamb, tanned or tawed." There were also large items of "hides and skins, varnished," and "skins other than goat, sheep and lamb, mineral tanned." The remainder of the imports were scattered through a considerable number of classes in relatively small amounts. In 1916 skins of the first-named class constituted an even larger proportion of the total imports, and most other classes had remained stagnant or had fallen off, except for moderate increases in imports of heavy hides, presumably due to the demand for material for army shoes.

Exports of leather from France fell off from 35,284,700 pounds, valued at $31,404,190, in 1912 to 11,526,900 pounds, valued at $12,651,800, in 1916. The causes of this falling off are obvious. In 1912 the big items of French leather exports were, of course, goat, sheep, and lamb skins, tanned or tawed; other skins, tanned or tawed; goat, sheep, and lamb skins, dyed; and all classes of skins, mineral tanned. The system of classification used in the statistics does not permit of a more

detailed description. The falling off in 1916 affected all classes to very much the same extent, with the exception of the single item of chamois skins, which increased slightly.

ITALY.

ANIMAL POPULATION.—The number of cattle in Italy is estimated at 6,500,000, the sheep at 11,000,000, and the goats at 3,000,000. There are, unfortunately, no recent exact figures.

TRADE IN HIDES AND SKINS.

According to available statistics, the Italian imports of hides and skins for 1913, 1916, and 1917 amounted to 48,723,400 pounds, 71,553,600 pounds, and 36,669,600 pounds, respectively. The great bulk of this raw stock was dry, but no further classification is given. Italian consumption of raw stock for 1918 was estimated at about 193,600,000 pounds, of which 77,000,000 was covered by domestic production and 116,000,000 by imports. The figure for imports for this year seems large in comparison with the actual imports for earlier years, but this may be explained by the allotment of additional tonnage by Allied nations. Exports of hides and skins from Italy amounted to about 58,600,000 pounds in 1913. During 1916, 1917, and 1918 the exportation of raw stock was prohibited.

LEATHER INDUSTRY AND TRADE.

According to a report by a Special Agent of the Department of Commerce, who visited Italy in 1911, the production of leather in that year was valued at about $5,200,000. The total quantity produced could not be ascertained. In 1913 it is estimated that the total consumption reached 148,000,000 pounds, and in 1916, 179,000,000 pounds. In 1917, however, decreased production of domestic raw stock and the shortage of tonnage for imports appear to have reduced consumption to about 112,000,000 pounds. It is uncertain how far any of these changes are likely to prove permanent.

Figures for imports and exports of leather for Italy are available for the period from 1912 to 1917, inclusive. During this period imports decreased from a total of 8,526,760 pounds, valued at $11,870,509, to 3,511,200 pounds, valued at $9,796,740. This decrease was comparatively slight in 1913 and 1914, but rapid in the later years. The Italian classification of leather imports is quite detailed, but in the earlier

years about a half of the total is accounted for by chrome-tanned calfskins and "all other" items. In the later years the chrome-tanned calfskins are still the most important item, but imports of sole leather show considerable increases, as well as imports of chrome-tanned goatskins.

Exports of leather from Italy were relatively insignificant throughout the period for which statistics are available, although they showed a small net decrease. Quantities ran from 500,000 to 1,800,000 pounds, valued at $750,000 to $1,400,000. In the earlier years sole leather was much the most important item of export, accounting for more than one-third of the total quantity. In the later years, however, the bulk of the exports appear to have consisted of glove leather, which accounts for about half of the total in 1916 and 1917.

BELGIUM.

ANIMAL POPULATION.—In 1913 the number of cattle in Belgium was placed at 1,850,000, and the number of horses at 267,000; but no official figures were available for sheep or goats.

Figures for Belgium are available only for exports and imports of leather for 1912 and 1913, and the classification is not at all detailed. The total imports of leather for these two years amounted, respectively, to 5,044,490 pounds, valued at $3,498,845, and 5,699,016 pounds, valued at $4,330,838. About two-fifths of the imports in each ot the years indicated come in the class "skins dyed, varnished, lacquered or morocco" and nearly the same amounts in the "all other" class. The bulk of the remainder (nearly 20 per cent), was accounted for by goat and sheepskins tanned with the wool or hair. Exports of leather from Belgium during the two years indicated remained about stationary, between 14,000,000 and 14,500,000 pounds, valued at about $7,500,000. The great bulk of these exports come in the "all other" class, although there was a considerable item, amounting to about 10 per cent of the total, of "skins dyed, varnished, lacquered or morocco."

The following are the figures for the production of leather in Belgium according to the Census of 1911: Sole leather and belting, 200,000 hides; light sole and heavy upper leather, 170,000 hides; calfskins, 118,000 skins; goatskins, 1,400,000 skins; sheepskins, 1,600,000 skins.

RUSSIA.

ANIMAL POPULATION.—The total number of cattle in European and Asiatic Russia is estimated at 52,000,000; the sheep at 72,000,000; and the horses at 35,000,000. No separate figures are given for goats; but it is asserted by some authorities that the bulk of these are included in the official figures for sheep.

HIDE AND LEATHER TRADE.

Statistics for exports and imports of hides and leather for Russia are available only for the pre-war years, 1912 and 1913. Imports of leather for those two years amounted, respectively, to 12,441,816 pounds, valued at $8,389,328, and 16,363,980 pounds, valued at $10,832,639. About one-third of these imports for each of the years shown comes in the class of large dressed hides or skins, presumably cattle for the most part. Nearly another third was accounted for by small dressed hides and skins and most of the remainder by stamped and lacquered leathers and morocco leather in proportions of about two to one.

Exports of leather from Russia during these years were relatively unimportant, amounting to 1,677,132 pounds, valued at $597,551, for 1912, and 1,095,876 pounds, valued at $498,194, for 1913. Much the greater part of these exports is shown in the "all other classes." The only specific item of importance is, as might be expected, Russia leather, which accounted for nearly one-third of the total in 1912 and about a quarter of the total in 1913.

Figures for exports of hides and skins from Russia are also available for 1912 and 1913. In 1912 these exports amounted to approximately 112,000,000 pounds, valued at $24,000,000, and in 1913 to approximately 92,000,000 pounds, valued at $18,000,000. The only classification showing in these exports of raw stock is large undressed skins, small undressed skins, and trimmings. The total exports for both of the years indicated are about equally divided between the large and small skins. Imports of raw stock into Russia amounted to about 99,500,000 pounds, valued at $8,000,000, in 1912 and to 130,000,000 pounds, valued at nearly $11,000,000, in 1913. Separate figures are given for imports of dry and wet raw stock; but in both the years indicated the latter class accounts for all but 10 to 20 per cent of the total.

PRODUCTION OF LEATHER.

The total value of leather produced in Russia amounted to approximately $33,000,000 in 1911 and about $36,300,000 in 1912. The principal item was sole leather, which amounted to $18,680,000 and

$20,879,000 in the two years, respectively. The values for "Russia leather," the next item of importance, were $2,979,790 and $3,214,630.

The following table (from a publication of the Russian Tanners' Association of Petrograd) shows the production for these two years in detail, together with comparative figures for 1916, as far as available. In computing increases or decreases between 1912 and 1916 the difficulty referred to in the second footnote to the table should be considered. The classifications are complicated and difficult to translate, and it is not certain in all cases that the correct technical equivalent has been found. The relation between the two sets of figures is not sufficiently clear to determine the increase, if any, in total production.

Products.	Units of quantity for 1911 and 1912.	1911. Quantities.	1911. Value.	1912. Quantities.	1912. Value.	1916. Quantities (*pieces*).
Sole leather	pounds	59,837,584	$18,680,080	64,676,592	$20,879,850	2,679,173
Russia leather	pounds	6,211,264	2,979,790	6,861,280	3,214,630	
	pieces	144,000		115,000		
Calf leather	pounds	1,227,808	842,540	1,011,136	618,515	1,716,556[b]
	pieces	50,000		49,000		
Young calf leather[c]	pounds	180,560	354,320	144,448	254,410	
Horsehides	pounds	4,261,216	1,824,130	4,261,216	1,938,975	
	pieces	61,000		68,000		881,617
Morocco leather	pounds	28,890	31,930	10,833	47,885	
Kid leather	square feet	1,335,000	271,920		165,830	
Glazed leather	pounds[a]	296,000	223,510		246,685	2,020,932[b]
Goatskins[d]	pieces	3,700	28,325		2,317	
Sheepskins[d]	pieces	300,000	520,150		473,285	
Tawed skins	pounds	975,024	324,450	1,697,264	573,710	577,517
	pieces	600		7,000		
Half-tanned skins[c]	pounds	1,147,504	4,222,485	12,422,528	4,637,060	4,862,206
	pieces	78,000		77,000		
Chrome leather	pounds	137,225	296,640	97,502	325,480	
	square feet	934,000				
Split leather[c]	pounds	1,336,144	268,830	1,769,488	337,840	
Lacquered leather			531,480		533,540	239,081
Strap leather	pounds	2,997,296	1,361,145	3,250,080	1,518,220	
Chamois					2,059	
Shagreen			567,015		433,015	
Other tanned hides and leathers	pounds	325,008	111,175	288,896	104,544	
Totals		.....	$33,439,915	.....	$36,307,850	12,977,082

[a]This is conjectural, no unit being given in the original document.

[b]The selection of the items in the more detailed classification of 1911 and 1912, which should correspond with these items in 1916, is to some extent conjectural, and it is uncertain how far the later figures represent gains or losses.

[c]The exact significance of these terms is somewhat uncertain.

[d]Presumably rough tanned, and exclusive of finished specialties.

In connection with this matter it was stated by a Government agent who visited Russia in 1912 that "although there are many establishments in the Empire in which tanning is carried on, most of them are little more than family industries. Recently, however, a tendency toward concentration has been shown."

Part II.—Semi-Manufacturing and Raw-Stock Producing Countries.

Inasmuch as leather production in Scandinavian countries, Spain, Portugal, and other minor countries of Europe is of relatively small importance, it is not considered necessary to deal with them in detail in this paper.

DOMINION OF CANADA.

ANIMAL POPULATION.—In 1917 the numbers of the principal classes of livestock in Canada were as follows: Cattle, 7,920,940; sheep, 2,369,358; and horses, 3,412,749.

According to a census taken by the postal authorities in Canada in the year 1916, the value of the output of tanneries of that country aggregated about $24,000,000. Judging, however, from the figures for exports to the United States (shown below), and to the mother country the output has increased considerably in the past two years. Prior to 1913 Canada exported very little leather to the United States; but after the passage of the Underwood-Simmons Law in 1913, when the tariff on leather was removed, she immediately began to increase her shipments of sole leather. In 1916, 1917, and 1918 there were decidedly large sales of harness, saddlery, patent, calf and kip, and other kinds of leather to the United States, which had not theretofore been sold in this country. The table given below shows the imports of leather into the United States from Canada during the period 1913 to 1918 (fiscal years):

Leather.	1913.	1914.	1915.	1916.	1917.	1918.
Glove	.....	.....	.....	.....	.....	$121
Belting and sole	$100,112	$1,381,481	$1,519,075	$2,782,226	$1,600,279	1,893,985
Goatskins (tanned)	161	1,923	96	916	463	473
Harness and saddlery	.....	.....	.....	199,858	1,189,803	3,815,180
Patent, japanned, and varnished	.....	.....	.....	67,208	86,726	92,265
Calf and kip	.....	.....	.....	829,274	927,440	1,517,190
Sheep and lamb	.....	.....	.....	2,644	60,977	33,298
Other upper	.....	.....	.....	186,115	147,018	32,626
All other leather	19,570	623,747	923,955	363,614	385,952	673,532
Total	$119,843	$2,007,151	$2,443,126	$4,431,855	$4,398,658	$8,058,670

Whether Canadian tanners are to become serious competitors of American producers can not be determined at this time; but it is pointed out by some who are not unfriendly to the trade that there should at least be reciprocal relations between the two countries in the leather business. At the present time Canada imposes a tariff ranging from 25 to 30 per cent ad valorem on leather imported from this country, while a preference is given to the mother country. The rates on leather from the United Kingdom range from 17½ to 22½ per cent ad valorem.

AUSTRALIA.

ANIMAL POPULATION.—Australian statistics of livestock are very complete. At the end of 1915 the number of cattle was placed at 9,931,416; the number of sheep at 69,257,189; and the number of horses at 2,377,920.

DOMESTIC LEATHER INDUSTRY.[1]

The production of leather in Australia increased from $11,291,000 in 1909 to $16,879,000 in 1914. The industry is mainly centered in New South Wales and Victoria.

Australian tanners are producing today nearly every kind of leather. The greater part of the local production heretofore has been inferior—so inferior, in fact, that Australian shoe manufacturers making the better grades did not use it extensively until the world leather shortage forced them to do so. The larger tanners, of course, make very fair leather, but with Federal control of the prices of hides and skins, and of exports, and the protection afforded by a high tariff, many of the Australian tanners find it more profitable to make a mediocre quality of leather than to exert themselves to meet outside competition with quality products.

Sole and harness leather are the great staple products of the Australian tanneries. The harness leather is very satisfactory and is used almost exclusively by local harness makers. Sole leather has shown a marked improvement and is of satisfactory quality. The product of many of the tanneries, however, still has a most disagreeable odor and deteriorates when exposed to moisture.

Sheepskins are tanned in large quantities in Australia. Formerly

[1]This section is a summary of passages from a report by C. E. Bosworth, Commercial Agent of the United States Department of Commerce, entitled "The Shoe and Leather Trade in Australia" (Special Agents' Series No. 159).

they were all bark tanned, but now many of them are acid tanned. Manufacturers complain that the acid-tanned sheepskin is likely to crack when it comes in contact with sweat, either in shoe or in harness work. White sheepskin of Australian make is used for linings only in cheap and medium-grade shoes.

Belting butts are produced in considerable quantities in Australia, and most of the made-up belting is produced by local belt manufacturers. As with sole leather, however, English belts are usually specified by those who think of quality before price.

Smooth and boarded calf of Australian manufacture is fairly good; but it is not generally regarded as suitable for anything but shoes of medium and cheap grades.

Side leather is made in both black and colors and is now pretty generally used. The finish is inferior to that of the American product, but usually not inferior enough to warrant users paying the difference in price and landing costs.

IMPORTS OF LEATHER.

The following table gives the statistics of importations of leather into Australia in the years 1913 and 1915-16:

Countries of origin.	1913.	1915-6.
Total	$2,155,815	$1,639,627
United States	1,347,544	1,309,853
Germany	395,107	.....
United Kingdom	302,039	253,000

The reason for the falling off in imports, as stated above, is to be found in the increased use of home products. It will be noted that there was a decline in imports from both the United States and Great Britain, and that neither country has filled the gap left by Germany.

The principal items of import from the United States for 1913 and 1915-16 were as follows:

	1913.	1916-17.
Calf, other than patent and enameled	$44,811	$55,322
Patent and enameled	339,048	702,348
Rough-tanned goatskins, Persian sheepskins, skivers and chamois leather	7,155	5,587
Miscellaneous (including kid)	956,530	546,596
Total	$1,347,544	$1,309,853

The largest decline in imports from the United States was that covering "Miscellaneous leather (including kid)," which amounted to $410,000. On the other hand, there was an increase of $363,000 in the imports of patent leather.

The largest item of import from Germany in 1913 was patent leather, which amounted to about $210,000. The other items included calf, $82,000; rough tanned skins, $16,000; and "Miscellaneous (including kid)," $88,000.

The falling off in imports from Great Britain was in the item of "Miscellaneous (including kid)."

UNION OF SOUTH AFRICA.

ANIMAL POPULATION.—According to estimates made in 1916, the total number of sheep was placed at about 32,000,000, and the total number of goats at approximately 9,000,000. Available figures for other classes of live stock are not so recent. In 1911 the number of cattle was placed at 5,797,000, and the number of horses, mules, and asses at 719,000. Mention should be made of a total of approximately 1,400,000 cattle and 2,000,000 sheep (perhaps including goats) in Rhodesia and certain other territories of British South Africa that are politically distinct from the Union but practically parts of it for economic purposes.

DOMESTIC LEATHER INDUSTRY.

The leather industry in the Union of South Africa is still of very minor importance, and the available data with regard to it are scanty. No complete industrial census has ever been taken for the Union, but the production of the tanning industry for the fiscal year 1915-16 was estimated at $2,300,000. There has lately been a good deal of discussion of the stimulation of domestic manufacturing industries, and there appears to be a strong movement for a revision of the tariff to secure better protection against foreign goods. The domestic market, however, is so comparatively small that there does not seem to be much prospect that local industries will prove serious competitors, except perhaps in a very few staple lines.

South Africa has, of course, not only an ample supply of raw stock, but also an excellent source of supply of vegetable tanning material in the native wattle bark, which has been introduced from South Africa into other countries. One of the recently established industries of the country is the manufacture of wattle bark extract both for domestic consumption and for export. Announcement was recently made, moreover, of the discovery of important deposits of chrome ore in Rhodesia; and this has aroused discussion of the possibility of the establishment of a local chrome tanning industry.

The boot and shoe manufacturing industry is of minor importance in South Africa, although there is a considerable number of firms engaged in it. It does not seem likely that local producers will be able to fill satisfactorily the demand for most classes of high-grade shoes. Formerly this trade was mainly in the hands of British manufacturers; but at present large quantities of boots and shoes are being received from the United States, largely as the result of inability to obtain supplies elsewhere.

IMPORTS AND EXPORTS OF LEATHER.

Statistics are available for the imports and exports of leather for the Union of South Africa for the years 1912 to 1917, inclusive. The classification is not at all detailed; in fact, the only classes shown specifically are pigskins and enamelled, morocco, and patent leather. Total imports of leather during the period referred to increased from a value of $980,099 in 1912 to $1,136,391 in 1915; since which they had fallen off materially to $542,780 in 1917.

This decrease is presumably due to shipping difficulties, increased prices, and the shutting off of accustomed sources of supply in the United Kingdom; but it may also be due in part to the expansion of the domestic industry. Imports in the class of enamelled, morocco, and patent leather have fluctuated very greatly—from 10,000 to 56,000 pounds, valued at $9,000 to $47,000. During 1916 and 1917 they remained about stationary—in the neighborhod of 35,000 pounds, valued at $35,000. In this latter class from one-third to two-thirds of the imports have all along been supplied by the United States, but most other classes of leather imported into South Africa come about half from the United Kingdom and half from Australia. Exports of leather from South Africa are of minor importance, though they have shown a tendency to increase of late years to 75,000 to 100,000 pounds, valued at $35,000 to $50,000, and destined about half to the United Kingdom and the remainder to the neighboring African territories, including the Portuguese, Belgian, and former German possessions.

TRADE IN HIDES AND SKINS.

As remarked above, South Africa is an important producing country for raw stock, although it does not rank among the hide and skin exporting countries of the very first class. The trade in hides and

skins is for practical purposes, of course, entirely an export trade. The large items of imports of hides and skins that appear in the statistics are from neighboring African territories and intended for reexport. During the period for which figures are available, the exports fluctuated a good deal but generally ranged from 15,000,000 to 20,000,000 pounds of cattle hides, 25,000,000 to 37,000,000 pounds of sheepskins, and 4,000,000 to 9,000,000 pounds of goatskins.

SOUTH AMERICA.

ANIMAL POPULATION.—The total number of cattle in Latin America may be estimated at about 90,000,000, and that of the sheep at about the same, with the reservation that some authorities consider the official figures for sheep in Argentina much too small, and those for Uruguay 10,000,000 too large. The number of goats is about 20,000,000, and of horses 18,000,000.

THE EAST COAST.

In the east-coast countries of South America the leather situation, so far as the native production is concerned, is somewhat complicated. The war has undoubtedly given a tremendous impetus to the tanning industry, especially in Argentina and Brazil. In Rio de Janeiro, they are now experimenting with varnished leather, and tanners in that city have made more progress in that line than have those in Buenos Aires. They are also making patent sides, which are cutting into our own export trade. So far as sole leather is concerned, the duties are prohibitive in all these countries. The natives do not insist on long-wearing qualities, but they do prefer an inexpensive article, and for this reason the native product fills the bill. According to the Census of 1913, the value of leather tanned in Argentina was about $13,700,000. No statistics for the Brazilian production are available.

The Argentine Republic undoubtedly has the largest production of shoes and the most highly organized industry in South America, but Brazil really makes the best shoes. The largest factories in Argentina turn out from 2,000 to 3,000 pairs of shoes a day, comprising several hundred different models. In Buenos Aires alone there are about 200 shoe factories. More than 100 of these have an output of from 500 to 2,000 pairs. In Uruguay there are approximately 30 shoe factories using machinery.

The value of leather imported into Brazil in 1917 was $4,280,000.

Imports into Argentina in 1916 were about $1,233,000 and into Uruguay (in 1915) about $153,000.[1]

THE WEST COAST.

Ecuador, Peru, and Bolivia.

The tanning industry in Ecuador, Peru, and Bolivia is negligible. They are not making leather that can compete effectively with American or any other imported leather, in normal times. The industry, however, has been stimulated in all these countries, and experiments are now being made with chrome processes in Lima, Peru. As regards importations of leather, the value for Peru is nominal, the highest value in the past few years having been not more than $130,000.

Chile.

Practically all the sole leather consumed in Chile is of local tannage, and it is of fairly good quality. Although a certain amount of upper leather suitable for better grades of shoes is made locally, by far the greater part is imported. It is stated, however, that a distinct improvement has been made in the quality of the glazed kid and box calf turned out by local manufacturers. The estimated production of Chilean tanners in 1915 was about $8,000,000. According to figures for 1916, Chile imported about $500,000 worth of leather during that year, the bulk of it coming from the United States. Besides Germans there are other Europeans, chiefly French, interested in the tanning industry.

In the cities of Valparaiso and Santiago a number of shoe factories equipped with American machinery are turning out shoes of good quality in quantities up to 2,000 pairs a day. Shoes for men, women, and children are all made in the same factory. There is no specialization of output, as in the United States. The majority of shoe manufacturers in Chile are also Europeans. This question of nationality has a big influence on importations of leather and shoe supplies; as for example, it is only natural that two or three brothers of French origin who are running a combination tannery and shoe factory should turn to France when desiring to purchase new stock.

Since the trade of other countries of South America is nominal, it is not thought necessary to cover them in detail.

[1]Latin American trade statistics are so unsatisfactory that these figures should be accepted with some reserve.

INDIA.

ANIMAL POPULATION.—Official statistics for 1914-15 put the number of cattle and buffaloes in India at 161,000,000. This only covers a portion of the Native States, and is therefore short of the actual total. It includes for British India 86,000,000 full-grown neat cattle; 19,000,000 full-grown buffaloes; and 42,000,000 head of "young stock" (cattle and buffalo calves combined). For the more important Native States it includes 12,000,000 neat cattle and 2,000,000 buffaloes, of all ages. The number of sheep (including some goats in the Native States) is placed at 31,000,000; and the number of goats (probably too small) at 33,000,000.

The export and import statistics of India are very inadequate for the purpose of giving an idea of the extent of the hide and leather trades, since the classifications, though simple and intelligible, are not at all detailed.

EXPORTS OF HIDES AND SKINS.

Available figures show that the exports of all classes of hides and skins from India decreased from 197,600,000 pounds in the fiscal year 1913 to 163,000,000 in 1917. The big items are cattle hides, goatskins, and sheepskins, which in 1917 made up about two-thirds of the total, with buffalo hides as a relatively small but still important class.

The action of the Government in concentrating the tanning facilities of the country on the production of hides for war purposes has greatly diminished, for the time being, the domestic Indian demand for skins; and this has led to an accumulation that is available for export, when shipping can be secured. As the bulk of the tonnage available for purely commercial shipments is at present Japanese, this situation has given the Japanese dealers and buyers, as elsewhere explained, an advantage in the trade.

LEATHER INDUSTRY AND MARKET.

The Indian leather industry is a considerable one, but the products are almost entirely of the *rough tanned* variety and the only classification appearing in the statistics of the exports of leather includes (*a*) rough tanned hides and (*b*) rough tanned skins. Exports of these classes increased from 40,817,952 pounds, valued at $14,979,233, in the fiscal year 1913, to 55,703,648 pounds, valued at $30,612,519, in 1917.

The hide and leather trades in India have their center in Cawnpore. There is a large consumption of the rough tanned and native tanned leather for the manufacture of water bags, sandals, ginning rollers, saddle bags and all other classes of saddlery and harness. For

these purposes the domestic products, even in the present crude state of the industry, appear to be satisfactory; and the prospects of marketing American leather for the purpose do not appear to be particularly good. It could certainly not be sold except at competitive prices.

There has been a considerable increase of late years in the manufacture of finished leather in India, but the products of this industry are not exported to any extent and therefore no detailed statistics of production are available. During the war practically the whole output of the Indian leather industry, so far as buffalo and cattle hides are concerned, has been taken by the Indian and British Governments for army purposes, and the difficulty is now said to be a shortage in tanning materials which has not thus far been overcome. Efforts are being made by the Indian Government to develop the domestic supplies of chrome, but the chrome tanning industry in India is still in its infancy. The very extensive use of leather for the manufacture of water bottles in India and the damp climate during the rainy season over a large part of the country, make chrome tanned leather particularly suitable for the Indian market.

The manufacture of leather in India is so largely a small scale industry, carried on by primitive methods, that no complete and reliable statistics with regard to the output have yet been published.

Imports of leather into India decreased from 728,784 pounds, valued at $481,365, in 1912-13 to 367,136 pounds, valued at $470,737, in 1916-17. There are no figures for separate classes of leather.

JAPAN.

ANIMAL POPULATION.—The total number of cattle and buffaloes in the Japanese Empire (including Korea and Formosa) in 1915 was about 3,200,000; goats, 226,000; and horses, 1,633,000. The number of sheep was negligible, and all attempts to establish sheep-raising in Japan proper have failed, although there are greater prospects of success in Korea. The latter country, moreover, has about half of the total number of neat cattle (excluding about 400,000 buffaloes in Formosa). More than half the goats are in the small group of the Riu Kiu Islands.

TRADE IN HIDES AND SKINS.

Japanese imports of hides and skins are shown for only two classes, (*a*) bull, ox, cow, and buffalo, and (*b*) all other; and for the latter, values only are given. Imports of the first-named class increased from 5,948,187 pounds in 1914 to 18,812,322 pounds in 1916. During the same period the imports of all other hides and skins increased from a value of $144,635 to $243,274. In considering the increase in the im-

ports of bull, ox, cow, and buffalo hides, it is necessary to note the exports, which are shown for one class only, "hides and skins undressed," and which fluctuated greatly during the period for which figures are at hand, decreasing from 844,353 pounds in 1914 to 228,156 pounds in 1916. These are mainly reexports of Chinese hides and skins, as the Japanese domestic production for export is negligible.

LEATHER TRADE.

It thus appears that there was a considerable net increase in the Japanese consumption of hides and skins, coming, as might be expected, almost entirely from China. This has been the natural accompaniment of a very considerable expansion in the Japanese leather industry, although, as stated above, this expansion has not been anything like that in some other lines. It has, moreover, been to a very large extent a war-time expansion, since before the war the Japanese leather industry was not expanding with any rapidity. The lack of domestic raw materials and the climate have prevented the Japanese from being by habit a leather-using people, and this fact goes far to offset the advantage of being near the Chinese source of supplies of hides and skins. A very considerable part of the large consumption of hides in 1915 and 1916 was accounted for by war orders for boots and shoes for the Russian Army and was therefore decidedly not normal.

Figures are at hand for imports and exports of leather for Japan for 1914, 1915, and 1916. The figures for the imports are given in some detail, but for the exports, totals only. Total imports of leather show a considerable, though not an enormous, increase from 1,820,179 pounds, valued at $943,179, in 1914 to 2,332,594 pounds, valued at $1,353,365, in 1916. In 1914 about one-third of the imports by quantity consisted of sole leather, and rather more than another third of miscellaneous sheep and goat leather other than patent leather. The other principal items of import, in the order of their importance, were leather waste, dyed and colored leather of all classes, patent leather, and Indian tanned hides. In 1916 the proportion of sole leather had fallen off somewhat, the proportion of miscellaneous sheep and goat leather had considerably increased, and the proportion of leather waste had very largely increased. The other items remained about the same. Exports of leather from Japan increased from 743,319 pounds, valued at $432,608, in 1914 to 1,454,118 pounds, valued at $832,853, in 1916.

This increase of approximately 100 per cent is large in itself, but not especially so when compared with the increases during the same period of some other classes of Japanese manufactured goods.

Japanese statistics of leather production are not very detailed. They show that the total output for some years before the war fluctuated around 600,000 to 800,000 pieces (of which three-quarters or more was accounted for by hide leathers), without any marked tendency to increase. From 1914 to 1916, however, the total jumped from 988,000 pieces, valued at approximately $4,600,000, to 5,213,000 pieces, valued at $30,400,000. This enormous increase was mainly the result of Russian army orders, and was practically all in sole and side upper leathers, with a certain amount of harness, case and strap. There are no separate figures for calf, sheep or goat leathers, but they are known to be unimportant.

Characteristics and future of Japanese industry.

The Japanese have a considerable trade in cheap boots and shoes to other parts of the Far East, which they are likely to maintain to a great extent for reasons of price. They also have a considerable export, with a better reputation for quality, in leather baggage and containers of all descriptions. Most observers do not look for an expansion in the Japanese exports of either manufactured dressed leather or boots and shoes to a seriously competitive extent—at any rate not to so great an extent as in textiles, hardware, etc. Japanese competition is likely to be more serious in some of the minor lines of manufactured leather goods, especially bags, trunks, and cases.

As appears from the figures given above in connection with the raw-stock trade, the Japanese industry has thus far devoted itself much more to the working of buffalo and cattle hides and kips than of sheep or goat skins. The present situation with regard to the Indian skin trade, however, has for the time being given the Japanese an advantage with regard to the supply of raw skins, which should be noted.

The British Government has practically stopped the tanning of skins in India in order to conserve tanning material for hides and to increase the tanning of hides. The shutting off of imports to America will naturally cause accumulation unless the Indian Government allows tanning to be undertaken again. In the meantime, Japan has entered the skin market seriously and is taking full advantage of the situation. This buying sustains the market so far.

The Japanese merchants are also ship agents and Japanese ships are at their disposal. The Japanese require payment of their freight in rupees in India, which eliminates for them the exchange situation when buying merchandise in India. British ships are paid in sterling in London. The Japanese seem to avoid as much as possible Atlantic voyages, while British ships have been withdrawn from the Pacific and placed in the Atlantic voyages or other parts of the war zones.

CHINA.

ANIMAL POPULATION.—There are no trustworthy estimates of the numbers of live stock in China. A China census of 1913 gives 22,000,000 cattle, 22,000,000 sheep, and 9,200,000 horses, for the whole country, exclusive of Tibet; but these figures are almost certainly too small, especially for Mongolia and Chinese Turkestan. No estimate of the number of goats is known to exist.

HIDE AND SKIN PRODUCTION AND TRADE.

The vast importance of China in the hide and leather trade lies, of course, in its exports, actual and potential, of hides and skins. During the period from 1912 to 1917, buffalo and cow hides increased from 44,000,000 to 64,000,000 pounds; goatskins from 5,900,000 pieces to 11,700,000; horse, ass, and mule hides from 4,000 pieces to 31,000; and sheepskins from 377,000 pieces to 1,720,000. However correct the figures given above for the numbers of livestock may be, the general opinion is that China is not yet exporting anywhere near her maximum capacity in hides and skins.

As might be expected, there are practically no imports of hides and skins into China.

LEATHER TRADE.

With regard to the leather trade of China the only statistics available for imports are for totals of all kinds of leather, which increased from 12,398,000 pounds, valued at $4,759,360, in 1912 to 18,945,000 pounds, valued at $11,154,252, in 1917.[1] This is a considerable relative increase, but the total is obviously small in proportion to the size and population of the country. Like the Japanese, the bulk of the population of China are not by habit leather users; and in the southern part of the country,

[1]This large apparent increase in average value was only partially due to rising prices; the main cause being the abnormal rise in the exchange value of the Chinese silver currency in 1916 and 1917.

where the people are best able to purchase foreign goods and are most progressive, the climate is unfavorable to an extensive development of the trade. There will undoubtedly continue to be an increase in the demand, especially in the medium grades, for American leathers for use in the custom-shoe industry, which, though small in proportion to the size of the country, is still expanding with considerable rapidity in the large cities. In the lower grades the Japanese have a great advantage. There is a considerable domestic production in China of very inferior leather, which is used to some extent for the soles of native shoes; but the total consumption of leather in China for boot and shoe making is relatively very small. Most of the people in the south go barefoot, and in the north wear shoes in which felt is the principal material. The Chinese statistics show a considerable export of tanned goatskins and dressed kid and lamb skins, which amounted to approximately 1,214,305 pieces in 1912, but had fallen off to 619,689 in 1917. There is no detailed information with regard to this trade, but it is thought that it represents merely a preliminary operation, to be rated more as a process of preservation than as a branch of leather manufacture.

Part III.—Raw-Stock Supplies.

WORLD PRODUCTION OF RAW STOCK.

The table inserted at the end of this pamphlet shows for the principal countries of the world (*a*) the numbers of the chief classes of live stock and (*b*) the imports and exports by weight, as far as available, for the principal classes of hides and skins over a period of years. This period has, as far as possible, been made from 1912 to 1917, inclusive, but for a number of countries is necessarily limited to certain of the earlier of these years. Countries of minor importance are summarized in "Other" classes. The only territories for which no data at all could be secured are a few of the smaller countries in tropical Latin America and Africa, Afghanistan in Asia, and Albania and Montenegro in Europe.

Animal population of the world.

The available statistics for many countries are so defective that it was not thought advisable to attempt to total the figures for the whole world on the table itself, either as regards the animal population or the imports and exports. The data, however, may be summarized very roughly here. They indicated that there were in the whole world, about the beginning of the war, approximately 555,000,000 neat cattle and buffaloes (including calves); 520,000,000 sheep; 155,000,000 goats, and 126,000,000 horses (including mules and asses in some countries).

Separate figures for calves were not available for any recent year for any important country excepting India. The number of buffaloes for which separate figures exist is about 38,000,000. This is probably approximately correct for the buffalo-raising countries, except China, for which no data are available. The number of sheep may be somewhat too large, since it is claimed that in a good many of the more backward countries the goats are to a considerable extent reckoned in with the sheep. In the case of Uruguay, moreover, there is a discrepancy of 10,000,000 in the number of sheep between two sets of figures, both claimed to be official. On the other hand, the official figures for Argentina show an enormous decline of 35,000,000 in the numbers of sheep between the two censuses of 1908 and 1914; and this may

indicate a considerable underestimate for this important sheep raising country for the latter year.

The total number of goats just given must be taken with great reserve. It is thought by some authorities that the figure for Turkey is too high; but with this exception the number of goats are probably quite generally underestimated. There is no estimate whatever to be had for the number of goats in China—one of the first class goat-raising countries of the world. As already stated, goats are apt to be reckoned with sheep in the official figures; and the conditions in which goats are kept in the less civilized countries makes it practically impossible to obtain an accurate count of them. It may be added, moreover, that the figure for world exports of goat skins given below (223,000,000 pounds) would seem very high if the total number of goats were only 155,000,000; and of the two figures the former is of course much more likely to be accurate.

Since few figures are available for Continental European countries later than 1914, these estimates make practically no allowance for the wastage of livestock caused by the war. There are no figures whatever available for estimating the extent of this wastage in the important areas of Russia, Turkey, the Balkans, Austria-Hungary, Belgium, and northern Italy; and it must be assumed that the decline in these countries has been extensive. In France and Germany there had been a general tendency for some time before the war towards a stationary number of livestock; and, if available official figures are to be trusted, this condition was maintained up to 1917 in Germany for cattle, and measureably so for sheep. As regards France, there has been an admitted decline of about 15 per cent in the number of cattle, 35 or 40 per cent in the case of sheep, and 20 per cent in the number of goats.

Finally, it may be noted that the only animal population figures available for Mexico date back to 1902; and that since 1910 or 1911 there has been in that country a great wastage of livestock due to the recurrent civil commotions, amounting in the opinion of some authorities to from 50 to 75 per cent of the normal totals.

World exports of raw stock in 1913.

As in the case of numbers of livestock, the data available with regard to imports and exports of hides and skins are not sufficiently complete to permit of accurate world totals being made. Figures for imports have in some cases been omitted altogether from the table,

either because the figures are negligible or unavailable, or because the importations are practically balanced by reexports. With regard to exports, however, it may be roughly computed that during the year 1913 (the last for which anything like complete figures are available) there were exported from all countries approximately 2,027,000,000 pounds of raw stock. The total consumption in that year of all countries having a leather industry on any considerable scale may be roughly estimated at from 3,300,000,000 to 3,500,000,000 pounds. It is probable that the difference between this figure and the figure for total exports just given (after subtracting an estimate of total reexports from the latter) can be reasonably accounted for by the consumption of domestic raw stock in the producing countries themselves.

The data for the world exports of individual classes of hides and skins are even less complete but they serve as a basis for very rough estimates of 1,470,000,000 pounds of cattle hides (including buffalo hides and calfskins); 290,000,000 pounds of sheepskins; and 219,000,000 pounds of goatskins. Separate figures of calfskins are available for too few countries to make an estimate of any value. The item of buffalo hides is relatively insignificant. Mention has already been made of the bearing of the amount of the goatskin exports on the correctness of official figures for the numbers of goats. The remnant of 48,000,000 pounds covers all other classes of hides and skins, including horse, ass and mule hides, and in some countries the skins of wild animals not properly belonging with tanners' raw stock. In the case of Africa these constitute an item of some importance, and it is possible that sufficient allowance has not been made for them in the estimates for "Other Africa." The total exports of horse, ass and mule hides for which separate figures have been obtained amounted to 28,500,000 pounds; but this is materially below the actual total.

The total of 2,027,000,000 pounds for world exports of hides and skins in 1913 may be divided roughly into a total of 1,064,000,000 for Asia, Africa, Latin America, and Australasia, which are primarily raw stock *producing* areas; and 963,000,000 pounds for Europe, the United States, and Canada, which are primarily raw stock *consuming* areas. In making this distribution the whole of the former Russian and Turkish empires have been included with Europe. In the case of Russia, this was done because during the two years preceding the war there was only a slight excess of raw stock exports over imports; and in the case of Turkey the existing figures are so defective that its

inclusion affects the result very little in either direction. The two totals for the producing and consuming areas should not be compared directly with each other, since there is a large item of reexports (for estimating which the available data are insufficient) to be subtracted from the latter.

Of the 1,064,000,000 pounds shipped from the producing regions under this classification, it may be estimated that 730,000,000 pounds consisted of cattle hides, buffalo hides and calfskins; 182,000,000 pounds of sheepskins; 121,000,000 pounds of goatskins; and 31,000,000 pounds of all other hides and skins.

Of the world exports of cattle hides (including buffalo hides and calfskins) there were shipped from the producing area just defined approximately 730,000,000 pounds, of which 135,000,000 came from India; 66,000,000 from China; 60,000,000 from Africa; 401,000,000 from Latin America; and approximately 34,000,000 from Australasia. Of the sheepskins there came from this producing area approximately 182,000,000 pounds, of which there originated in India about 4,000,000; in China, 5,000,000; in Africa, 44,0000,000; in Latin America, 70,-000,000; and in Australasia, 56,000,000. Of the world exports of goat-skins there were shipped from this area approximately 121,000,000 pounds, of which China produced 13,000,000 pounds; India, 58,000,000; Africa, 24,000,000; Latin America, 23,000,000; and Australasia a negligible quantity only.[1]

Subsequent developments in raw stock production.

With regard to the development of the raw stock situation since the years for which these figures are computed, it is difficult to speak very definitely, as the data are too scanty. As far as the numbers of livestock are concerned, the world situation was carefully investigated by the Bureau of Crop Estimates of the United States Department of Agriculture[2] in 1915-16; and they arrived at the conclusion that, since

[1]The remainder of each class not accounted for in this distribution by grand divisions of the world originated in Asia outside of India and China. Of the 34,000,000 pounds of cattle hides about 14,000,000 came from the Dutch East Indies, and the bulk of the remainder from Indo-China and Siam. The 3,000,000 pounds each of sheep and goat skins represent very rough estimates for Persia and other parts of central and southwestern Asia not elsewhere accounted for.

[2]The Meat Situation in the United States, Part I: Report No. 109 of the Office of the Secretary of Agriculture, 1916.

about 1907, the number of cattle in most countries had been not far from stationary, and had increased in a very few only—which, with exception of the United States, Asiatic Russia and Uruguay, were unimportant. This stationary condition was pretty general in Europe and existed also in Chile, Australia and Argentina—in the two latter mainly as a result of overslaughter prompted by the ruling high prices of beef. It must be remarked, however, that these statements do not take into account the large numbers of cattle in British India, China, and in other large areas of Asia, and of Africa and Latin America, where the cattle supply and grazing resources are by no means being used to the limit. Comparatively few figures for numbers of cattle are available later than those used in compiling the report of the Bureau of Crop estimates just referred to; but such as exist do not show very much change in the situation as outlined. There appears, however to have been a recovery in the numbers of cattle in Argentina, if the estimates of hide dealers in Buenos Aires of a total of 27,000,000 for 1917 are to be accepted.

With regard to sheep, the Bureau of Crop Estimates came to the conclusion in 1916 that, since about 1907 or 1908, numbers of sheep had increased absolutely in a small number of countries only; although these include Argentina, Uruguay, New Zealand, and the Union of South Africa—all countries of the highest importance. In some other important countries, including Asiatic Russia, Spain, and Hungary, the number of sheep had been about stationary; but it had declined absolutely in a long list, including a number of high importance, such as Australia, European Russia, and the United States, France, Austria, Germany, and Canada. The few figures which have become available since these conclusions were arrived at, affect the situation very little; although here again it must be emphasized that potentially important producing areas in Asia and Africa were not taken into consideration in making the statements just summarized.

Raw stock supplies after the war.

It would appear, therefore, that upon a resumption of normal commercial competition at the end of the war, American tanners will be facing a world situation where the tendency has been much more towards a stationary, or even a decreasing, output of cattle hides, calfskins and sheepskins in the producing areas for which the fullest data

are available, than towards an increase. With regard to goatskins it is not possible to speak so precisely, as the Bureau of Crop Estimates investigation did not cover the supply of goats, and available figures for stocks of these animals are, as already stated, defective. It seems certain, however, that there are large supplies of goats in China, and in many other less developed regions, which have not yet been extensively drawn upon; and it is probable, therefore, that there is not much need for apprehension with regard to future supplies of this class of raw stock.

At the same time, furthermore, it must be borne in mind that conclusions like those of the Bureau of Crop Estimates, which are based exclusively on statistical data, tend to underrate the relative importance of producing areas for which statistics are deficient, and especially of those areas whose importance is potential rather than actual. This last applies very strongly to China (especially Mongolia and Turkestan); to considerable areas in southeastern Asia and the East Indies; and to large regions in central and southwestern Asia and tropical America, and in the Sudan and central Africa. It seems safe to say that for the raw stock produced in the more developed regions the competition in the near future will become increasingly keen; and that a considerable advantage will lie with the purchasers who have the most direct and efficient buying connections and also the best access to supplies from the less developed areas.

In the remarks in the preceding paragraph no account was taken of the wastage caused by the war in Europe. This will undoubtedly be a complicating factor for time being; but it must be remembered that animal stocks, with anything like an intelligent slaughter policy, tend to recovery from wastage of this kind with considerable rapidity. Striking illustrations of this appear in Cuba in the years following the establishment of peace in 1899, where the number of cattle increased from 275,000 to 3,400,000 in fifteen years, despite a comparatively heavy slaughter; and in the Union of South Africa, where the number of cattle, which had been all but swept away during the Boer War, had been restored to 6,000,000 by 1911. It may be questioned indeed whether the domestic supplies of raw stock in Europe will not be brought back to normal amounts faster than the European leather manufacturing industries can recuperate sufficiently to utilize them.

While, on the face of these figures, only a comparatively small percentage of the world exports of cattle hides, sheepskins and goatskins

originated in British possessions, it is necessary to take into account the additional percentage, particularly in Latin America, that is controlled by British interests through the utilization of British buying houses in the producing countries and of British shipping for purposes of transportation. The degree of control over the raw-stock export supplies of the world that is thus held by British interests is of the greatest importance, both as between that country and other individual countries and as between the nations at present in alliance against Germany and the enemy and neutral States. It has been shown elsewhere how far it would be in the power of the British and other allied Governments to control former German sources of supply of hides and skins for a long time after the war, if it should be decided to attempt such a course.

SUPPLIES OF RAW STOCK FOR AMERICAN TANNERS.

It is obviously a matter of the first importance to have at hand information with regard to the distribution of the world supplies of the chief classes of hides and skins, and the extent to which the existing control of production and purchases may be relied on to assure to American tanners the shares that they require. The following notes touch upon a few important points in this connection.

Purchase of cattle hides in Latin America.

With regard to the purchase of wet salted cattle hides in South America, the facilities for securing supplies include the following: There are several very large heavy leather tanners, besides at least one large shoe-manufacturing tanner, who have their own representatives in the Argentine Republic; and these make purchases in both Argentina and Uruguay (Montevideo being only a few hours' run from Buenos Aires). One of the American tanning concerns purchases on behalf of itself and of several other firms. There is at least one very large brokerage house that acts as purchasing agent for more than a dozen American tanners, including one important shoe-manufacturing tanner, and another representing a considerable number additional. In the United States there is an important firm of selling agents in New York that acts as the United States representative of a very large Argentine hide-buying concern.

The above-mentioned firms deal largely in frigorifico hides *that are*

purchased directly from the frigorificos. It is estimated that two-thirds of the wet salted hides that are imported into the United States from this region are frigorificos, the remainder being mataderos and saladeros. It is stated that the United States takes all of the hides produced by American-owned frigorificos, and a considerable quantity of the same class turned out by the British and native packing concerns.

The firms above named also deal largely in matadero and saladero wet hides, but the bulk of the business, as already stated, consists of frigorificos.

In the case of dry hides, the stocks in the Argentine Republic—secured from sources other than packing plants—are accumulated by *large* dealers in various centers of the country. They have facilities for assorting, storing, and drying small lots (say 100 or 200) accumulated by farmers and *small* dealers and brought to them for final disposition. This business is largely in the hands of native firms, although it is understood that a considerable number of Germans have been important factors in the past. So far as can be ascertained, not more than two or three of the large tanning firms are buying this class of stock in direct competition with the large native firms. In general, the American firms make their purchases from the native concerns in question.

Cattle and buffalo hides in the Orient.

As regards the Far East, there are no American representatives buying cattle hides in either the Dutch East Indies or British India. Purchases are made largely through resident agents of Dutch, British, and other nationalities. In China the trade is mainly in the hands of large foreign merchandise houses, which are accumulators of hides purchased from natives. They maintain their own "godowns" or houses for the accumulation of hides for export to the United States and other countries.

A large item of Oriental hides consists of those of the water buffalo. Of these, India is the largest producer. While buffalo hides account only for a relatively small item in our import figures, yet at times they are used in considerable quantities for producing a cheap grade of sole leather. Since buffalo hides are very porous they are not suitable for the better grades. Those from Java have been used largely in producing chrome sole leather for cheap sporting shoes.

Cattle hides from Europe———Calfskins.

In connection with the general subject of our cattle hide supplies, it will be noticed that considerable quantities of this class of raw stock have been exchanged with European countries. On the face of it, it looks as if this trade is a bit inconsistent; but, in discussing the matter with hide experts, it appears to be accounted for by the fact that certain classes of hides of extra fine quality produced in Germany and other countries were bought by American tanners for special purposes.

The best calfskins produced in the world come from Continental Europe; and the United States naturally has looked to that section of the world for its supply. Both France and Germany have produced unusually fine grades of these skins. As already stated, there has been an enormous decline in the importations of European calfskins, for which Russia was formerly our principal source of supply.

Purchase of sheepskins from Australasia.

The chief item for which American tanners look to Australasia for supplies is sheepskins. Before the war practically all the purchases of these skins were made through London. The business was handled in this way for the reason that it was entirely British-controlled; it was financed by London banks and the goods were carried in British ships. Within the past year or two the bulk of the importations have come direct from Australasia. This has been due to the fact that ships have been allocated outright for the direct trade. At present it is not believed that American representatives of more than two or three United States firms are doing direct purchasing in this region, most of the supplies being secured through resident agents of other nationalities.

The Argentine market is probably the most open in the world, and buyers for American, British, French, and German firms are operating there. There is possibly more German competition in Argentina than in any other region. It is also to be noted that a large part of the sheepskins produced in the Argentine are controlled by packers, and that this means that a considerable portion is in the hands of American firms.

There are more than 20 goat and kid tanners who have native buying agents in India and China, but not more than two or three have their own exclusive men. There are probably 20 or more importing firms that have their own or native agencies in these countries.

[The following are provisional estimates, based on export and import statistics, on the figures of the Census of Manufactures of 1914, and on data secured from the trade or from the Department of Agriculture with regard to the domestic kill in subsequent years.]

APPENDIX A.

HIDES AND SKINS OBTAINED FROM DOMESTIC KILL, IMPORTED, EXPORTED, AND REMAINING FOR USE AS TANNERS' RAW MATERIAL DURING THE YEARS ENDING DECEMBER 31, 1915, to 1917.

Hides and Skins:	1915.	1916.	1917.
Obtained from domestic kill of country and packers:	(Pieces)	(Pieces)	(Pieces)
Cattle	12,592,000	14,620,000	13,723,900
Calf	5,418,000	7,048,000	7,030,700
Sheep	15,850,000	14,065,000	12,123,800
Goat	431,000	563,000	470,000
Imports.			
Cattle	11,286,436	12,550,744	11,181,977
Calf	6,020,381	7,939,173	4,783,461
Sheep	30,687,586	42,501,620	33,759,892
Goat	43,771,811	60,476,781	50,885,336
	(Pounds)	(Pounds)	(Pounds)
Kangaroo	962,509	1,229,026	603,541
Exports.			
	(Pieces)	(Pieces)	(Pieces)
Cattle	786,571	677,023	431,746
Calf	212,595	373,175	247,920
Sheep	35,297	27,772	188,802
Goat	264,849	339,411	203,923
Kangaroo	.....	.....	7,171
Apparent number remaining in United States for use as tanners' raw stock:			
Cattle	23,091,865	26,493,721	24,474,131
Calf	11,225,786	14,613,998	11,566,241
Sheep	46,502,289	56,538,848	45,694,290
Goat	43,937,962	60,700,370	51,151,413
	(Pounds)	(Pounds)	(Pounds)
Kangaroo	962,509	1,229,026	596,370

PERCENTAGES OF LEATHER PRODUCED IN THE UNITED STATES FROM IMPORTED AND DOMESTIC RAW STOCK.

	1915.		1916.		1917.	
	Imported.	Domestic.	Imported.	Domestic.	Imported.	Domestic.
Cattle	47.5	52.5	45.8	54.2	44.7	55.3
Calf	52.3	47.7	53.0	47.0	40.5	59.5
Sheep	65.9	34.1	75.1	24.9	73.5	26.5
Goat	99.0	1.0	99.1	0.9	99.1	0.9
Kangaroo	100.0	0.0	100.0	0.0	100.0	0.0

APPENDIX B.

PRODUCTION OF LEATHER IN THE UNITED STATES DURING THE YEAR ENDING DECEMBER 31, 1914, AND ESTIMATED PRODUCTION FOR THE YEARS ENDING DECEMBER 31, 1915, 1916, 1917.

		1914.	1915.	1916.	1917.
Leathers made from Cattle Hides.					
Sole	Sides	18,075,482	25,401,051	29,143,093	26,921,544
	Value	$116,188,059	$179,585,430	$234,310,468	$303,136,585
Belting butts	Butts	647,224			
	Value	$8,369,584			
Harness	Sides	2,773,312	(Sides)	(Sides)	(Sides)
	Value	$20,969,169	20,782,680	23,844,359	22,026,718
Cattle side upper,	Sides	10,037,284	(Value)	(Value)	(Value)
	Value	$32,939,139	$107,446,452	$139,780,842	$180,716,985
Upholstery	Value	$14,328,358			
Bookbinders'	Value	$1,362,673			
Leathers made from Calf Skins.					
Upper	Skins	15,869,401			
	Value	$41,812,734			
Patent	Skins	58,135	(Skins)	(Skins)	(Skins)
	Value	$100,612	11,225,786	14,613,998	11,566,241
Fancy	Skins	302,816	(Value)	(Value)	(Value)
	Value	$674,366	$33,452,842	$56,263,892	$60,954,090
Glove	Skins	356,925			
	Value	$725,024			
Leathers made from Sheep Skins.					
Upper	Skins	16,794,641			
	Value	$10,885,175			
Patent	Skins	975,327	(Skins)	(Skins)	(Skins)
	Value	$632,303	46,502,289	56,538,848	45,694,290
Fancy	Skins	6,051,190			
	Value	$4,531,371			
Glove	Skins	3,637,279	(Value)	(Value)	(Value)
	Value	$2,169,839	$30,226,488	$45,231,078	$59,402,577
Chamois	Skins	1,948,533			
	Value	$925,492			
Leathers made from Goat Skins.					
Upper	Skins	29,874,538			
	Value	$26,113,234	(Skins)	(Skins)	(Skins)
Patent	Skins	3,614,790	43,937,962	60,700,370	51,151,413
	Value	$3,966,577			
Fancy	Skins	1,132,254	(Value)	(Value)	(Value)
	Value	$1,200,218	$39,544,166	$72,840,444	$124,809,448
Glove	Skins	5,694			
	Value	$4,080			
Other leathers	Value	$53,898,429	$15,682,990	$25,288,977	$39,722,870
Total		$341,796,436	$405,938,368	$573,715,701	$768,742,555

APPENDIX C.

[The figures in the following table give a fuller view of the development of leather production and trade in the chief countries of the world for the period 1913 to 1917 than it was possible to give by means of statistics scattered through the text. Minor countries have been omitted, as the collection of data for them would have materially delayed publication. It must be remembered, however, that while such countries are relatively unimportant, especially as regards production, their consumption of raw stock and their imports and exports of leather would reach considerable amounts in the aggregate.

The figures shown in the first column of the table, under production by quantity, are, strictly speaking, for quantities of raw stock consumed. As data have not been available for reducing the gross weight of green raw stock consumed to net weight, these figures are presumably higher than the weights of finished leather produced; and this accounts for the low average value per pound which appears in the case of the United States and Germany, where production figures are given by both quantity and value. All these figures for raw stock consumed are estimates based on statistics for net imports and domestic kill; and the figures for the value of leather produced in the United States for 1915, 1916 and 1917 and in Germany for 1913 are estimates of a similar kind, with allowance for average changes in wholesale prices.

The gross total of imports of leather for the countries shown in the table during the year 1913 (or the nearest previous or subsequent year for which figures are available) was approximately $170,000,000; and the corresponding total of exports was $170,000,000. Some of these figures entering into these totals need to be corrected for re-exports, for estimating which available data were insufficient; but this is not a disturbing factor of as much importance as in the case of raw stock.

The total consumption of raw stock during the year 1913 for the countries for which figures are given on the table amounted to a little less than 2,900,000,000 pounds, which may be roughly calculated to have been between 80 and 90 per cent of the total world consumption for that year, as estimated on page 51. Of this total the United States accounted for between 35 and 40 per cent and Germany for 21 or 22 per cent. The whole of Asia, Africa and Australasia, of the American Continent outside of the United States, and of Europe outside of the United Kingdom, France, Italy, Germany and Austria-Hungary, accounted at the most liberal estimate for less than 20 per cent of this total consumption, and probably for not much over 10 per cent.

As no figures exist for the value of leather produced in any of the principal manufacturing countries, except the United States and Germany, for any year later than 1911, the existing data are insufficient for estimating the value of the world production of leather for any recent year.]

PRODUCTION, EXPORTS AND IMPORTS OF LEATHER AND TANNED HIDES AND SKINS OF ALL CLASSES FOR THE PRINCIPAL COUNTRIES OF THE WORLD.

	PRODUCTION.		IMPORTS.		EXPORTS.	
	Quantity.[a] Pounds.	Value.	Quantity. Pounds.	Value.	Quantity. Pounds.	Value.
United States:						
1913	1,272,000,000			$9,292,422		$38,437,687
1914		$341,796,436		15,008,801		44,975,996
1915		405,938,368	[b]	9,620,835	[b]	80,865,037
1916	1,532,000,000	573,715,701		16,984,958		100,498,137
1917	1,598,000,000	768,742,555		18,126,314		80,626,659
Canada						
1913				4,174,507		1,353,473
1914				3,035,609		3,067,586
1915	[b]		[b]	2,834,382	[b]	6,561,481
1916		24,000,000		3,216,302		7,297,295
1917				6,403,125		5,606,158
Europe:						
Germany						
1913	742,827,000	195,000,000	22,299,100	20,308,000	54,283,700	57,598,000
Austria-Hungary						
1913	120,000,000	[d]	18,822,647	15,588,374	9,144,902	5,839,067
United Kingdom						
1913	272,000,000		131,723,200	57,063,050	28,638,288	16,833,512
1914			141,809,696	51,449,125	24,874,080	13,842,832
1915		[d]	173,189,408	76,159,281	13,983,648	6,471,082
1916	295,000,000		135,839,424	74,217,804	16,569,504	13,086,018
1917	372,000,000		73,075,520	51,320,172	6,257,056	7,433,992
France						
1913	333,000,000		18,346,240	14,246,800	33,924,440	28,980,200
1914		[d]	11,507,320	9,494,400	23,530,980	20,395,200
1915			31,288,460	24,269,600	9,961,820	9,784,200
1916	246,000,000		39,482,920	31,113,400	11,526,900	12,651,800
1917	260,000,000					
Italy						
1913	148,000,000		7,657,980	11,769,327	1,791,680	1,334,771
1914			6,053,960	9,315,939	1,354,320	846,343
1915		[d]	3,727,680	7,648,700	1,801,360	1,391,970
1916	179,000,000		5,778,960	13,825,630	527,120	1,147,630
1917	112,000,000		3,511,200	9,796,740	518,540	1,081,960
Belgium						
1913	[e]	[e]	5,699,016	4,330,838	14,552,903	7,804,837
Russia						
1912		36,307,850				
1913	[f]		16,363,980	10,832,639	1,095,876	498,194
Latin America:						
Argentina						
1913		13,700,000	1,734,163	2,557,394		431,772
1914	[b]		838,967	1,154,429	[b]	337,677
1915			832,999	1,130,439		991,895
1916			1,096,100	1,233,345		899,612
Brazil						
1913	[g]	[g]	3,807,547	5,159,532	186,057	8,177
1917			1,769,537	4,280,000	853,762	614,422
Chile						
1913	[b]		599,941	549,966	[h]	[h]
1915		8,000,000				
Cuba						
1913	[g]	[g]	1,079,954	637,017	141,385	9,795
1917			1,562,757	1,077,789	1,777,337	43,463

	PRODUCTION.		IMPORTS.		EXPORTS.	
	Quantity.[a] Pounds	Value.	Quantity. Pounds.	Value.	Quantity. Pounds.	Value.
Mexico						
1913	[i]	[i]	461,828	319,652	2,423	995
Australasia:						
Australia						
1913		14,749,315		2,155,815		
1914	[b]	16,879,000	[b]		[j]	[j]
1915				1,840,710		
1916				1,639,627		
New Zealand						
1914			876,902	594,883		
1915	[b]		745,360	743,580	[j]	[j]
1916		4,060,550				
Asia:						
India					[i]	[i]
1913			728,784	481,365	40,817,952	14,979,233
1914			554,288	515,459	34,250,720	13,770,506
1915	[k]	[k]	404,992	366,179	37,601,312	15,424,824
1916			409,584	430,792	44,830,128	18,284,209
1917			367,136	470,737	55,703,648	30,612,519
Japan						
1914		4,600,000	1,820,179	943,179	743,319	432,608
1915	[b]		1,864,596	939,707	656,840	384,396
1916		[m]30,400,000	2,332,594	1,353,365	1,454,118	832,853
China						[i]
1913			14,673,600	5,278,760		822,936
1914			12,218,600	4,030,484		377,413
1915	[i]	[i]	12,417,300	3,472,711	[b]	632,369
1916			15,611,600	6,299,731		602,027
1917			18,945,000	[n]11,154,252		647,988
Dutch East Indies						
1913			1,415,377	479,376		
1914	[i]	[i]	1,406,784	515,482	[j]	[j]
1915			546,115	251,047		
Africa:						
Union of South Africa						
1913				1,039,732	5,062	2,341
1914	[b]			788,631	12,927	8,322
1915			[b]	1,136,391	77,236	35,272
1916		2,300,000		584,967	101,154	53,375
1917				542,780	72,136	50,489

[a]More strictly, the quantity of raw stock consumed.
[b]Quantities not available.
[c]A very rough estimate, made after the section on Austria-Hungary in the text had been sent to press (page 24).
[d]Values not available.
[e]No data available later than 1911, for which year the production is given is pieces only (see page 32).
[f]No satisfactory total can be made for the quantity of leather produced in Russia in 1912, as the statistics are partly in pieces and partly by weight. Such a total is available for 1916), (see table on page 34), but in pieces only, without the details necessary for an estimated conversion into pounds.
[g]No figures for production available.
[h]Figures for exports not available.
[i]Production negligible, as regards finished leather on a competitive basis.
[j]Exports of leather non-existent or negligible.
[k]Production of rough-tanned leather large, but no figures available.
[l]Almost wholly rough-tanned.
[m]Increase due to Russian war orders, and probably temporary.
[n]Increase in value mainly due to abnormal exchange value of Chinese silver currency.

STATEMENT OF RAW STOCK SHOWING THE NUMBER OF LIVE ANIMALS AND THE IMPORTS AND EXPORTS OF HIDES AND SKINS BY COUNTRIES.

Countries.	Years.	Cattle. Live animals. Number.	Cattle. Hides. Imports. Pounds.	Cattle. Hides. Exports. Pounds.	Calves. Skins. Live animals. Number.	Calves. Skins. Imports. Pounds.	Calves. Skins. Exports. Pounds.	Sheep. Skins. Live animals. Number.	Sheep. Skins. Imports. Pounds.	Sheep. Skins. Exports. Pounds.	Goats. Skins. Live animals. Number.	Goats. Skins. Imports. Pounds.	Goats. Skins. Exports. Pounds.	Horses. Hides. Live animals. Number.	Horses. Hides. Imports. Pounds.	Horses. Hides. Exports. Pounds.	All others. Imports. Pounds.	All others. Exports. Pounds.	Totals. Imports. Pounds.	Totals. Exports. Pounds.
Asia:																				
British India	1913	[a]100,422,082		131,738,544	38,639,837		3,319,680	22,934,265		3,546,816	28,683,583		58,346,848	[c]2,999,837			3,282,160	651,952	3,282,160	197,603,840
	1914			121,956,912			2,924,992			3,703,504			50,775,872				3,685,472	97,440	3,685,472	179,458,720
	1915	[a]119,252,062		77,532,896	42,184,790		2,369,808	31,015,836		2,945,040	33,338,487		42,790,944	3,236,791			2,703,984	67,536	2,703,984	125,706,224
	1916			95,424,000			3,333,232			3,642,128			44,794,512				3,263,568	39,536	3,263,568	147,233,408
	1917			94,387,328			5,704,496			5,055,008			58,442,496				4,556,944	50,960	4,556,944	163,640,288
China	1912			43,919,600						[e]997,911			[e]10,484,179			[e]38,150				[i] 55,439,840
	1913	21,996,693		66,405,066	(b)		(b)	22,186,175		[e]1,463,926	(v)		[e]12,662,037	[c]9,328,693		[e]113,840				[i] 80,644,869
	1914			55,616,400						[e]979,286			[e] 9,916,289			[e]115,660				[i] 66,627,635
	1915			58,319,333						[e]1,755,622			[e]12,933.362			[e]138,830				[i] 73,147,147
	1916			62,061,466						[e]3,175,386			[e]17,502,240			[e]259,570				[i] 82,998,662
	1917			63,613,200						[e]4,562,831			[e]20,771,975			[e]307,570				[i] 89,255,576
Dutch East Indies.....	1912			14,995,660									921,391					410,843		16,327,894
	1913			13,739,856									1,034,433					666,182		15,440,471
	1914	[a]5,674,020		9,979,545									663,923					607,655		11,251,223
	1915			[a]10,113,424	(b)		(b)	(w)			(w)		1,654,279	291,473						11,767,703
Other Asia	....	20,000,000	6,000,000	19,650,000				12,000,000	250,000	3,150,000	8,000,000	250,000	2,200,000	4,000,000			6,500,000		6,500,000	25,000,000
Africa:																				
Union of South Africa..	1911	5,797,000												79,000						
	1912		53,755	20,428,461					66,969	29,029.147			8,126,360						120,724	57,583,968
	1913		167,935	21,279,840	(b)		(b)		194,300	32,196,400	11,521,000		9,104.691						362,235	62,580,931
	1914		73,643	14,673,065				35,711,000	85,763	30,353,731			7,941,096						159,406	52,967,892
	1915		361,256	15,387,690					147,470	37,226,422			8,304,792						508,726	60,918,904
	1916		1,333,645	19,629,784				31,434,000	450,868	30,413,829	8,918.000		8.513,363						1,784.513	58,556,976
	1917		762,168	17,380,897					410,478	24,951,345			4,504,586						1,172,646	46,836,828
British East Africa....	1912			1,950,704									520,688							2,471,392
	1913			2,023,280									621,928							2,645.208
	1914	900,000					(b)	[k]6,555,000										727,030		[c]727,030
	1915				(b)													523,071		[c]523,071
	1916																	511,007		[e]511,007
	1917																			(g)
Egypt	1912									[e]2,723,929		(d)	(d)							[j] 2,723,929
	1913		52,045	[e]988,855						[e]3,088,650									52,045	[j] 4,077,505
	1914	[a]1,169,524	9,957	[e]189,083	(b)		(b)			[e]2,318,401				694,735					9,957	[j] 2,507,484
	1915		47,297	[e]898,643						[e]2,697,619									47,297	[j] 3,596,262
	1916		31,218	[e]593,142					[e]20,967	[e]3,027,064									[j] 52,185	[j] 3,620,206
Algeria	1913	1,107,000		5.086,700			8,200			3,787,300			2,567,700						2,556,500	11,449,900
	1914			3,311,500	(b)		900			3,169,500			2,001,500						1,964,300	8,483,400
	1915			2,498,600			337,000			3,560,000			2,029,500						1,454,600	8,425,100
Tunis	1913		185,424	1,209,238					27,654	1,480,683		[b]16,257	928,461						229,335	3,618,382
	1916	239,989			(b)			1,147,910			521,912			115,026						
	1917		62,443	594,360		(b)	(b)		254	2,242,387		[b]38,986	540,638						101,683	3,377,385
Other Africa (estimated)	1913			30,000,000	(b)		(b)			3,000,000			10,000,000				4,000,000			47,000,000
	....	32,960,000						37,400,000			29,300.00			353,000						
Latin America:																				
Argentina	1912	29,016,000		242,486,200		247,229			48,919	62,911,200		338,310	5,071,000			2,859,000			634,458	313,327,400
	1913			191,342,000		240,935	(b)		56,804	41,857,200		349,580	4,378,000			2,602,600			647,319	240,179,800
	1914	25,866,763		[b]171,743,000	(b)	85,144		[o]43,225,252	75,786	28,514,200	4,325,280	168,282	3,175,600	7,531,376		3,066,800			329,212	206,499,600
	1915			197,619,400		173,833			27,636	44,495,000		170,513	5,192,000			5,605,600			371,982	252,912,000
	1916			218,658,000		186,828			43,553	32,012,200		138.883	5,627,600			8,692,200			369,264	264,990,000
	1917	(n)		[b]210,071,400						24,915,000			4,188,800			8,690,000				247,865,200
Brazil	1912			79,760,443						1,608,222			5,147,195			304		262,644		86,778,808
	1913			77,164,450	(b)		(b)			1,591,024			5,050,943			264		472,259		84,278,940
	1914	[x]30,705,400		69,154.804				[s]10,559,930		1,334,228	[t]10 70		3,778,117	7,289,690		154		361,581		74,628,884
	1916	[x]28,962,180						[s]7,204,920			[t]6 50			6,065,230						